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ABSTRACT

This report of the Social Science Research Council's Conference on the National Longitudinal Surveys of Labor Market Experience (NLS) begins with a description of the rationale and background for the conference. In the first of four parts, the conference objectives are stated: (1) review previous research based on the National Longitudinal Surveys (NLS), (2) identify new directions, (3) suggest analytic strategies, and (4) comment on survey content. The NLS function is described as that of analyzing variation in labor market behavior with emphasis given to policy-relevant research issues. Section 2 overviews the conference proceedings and focuses on potential NLS research issues in the areas of work-family relationships, labor-force socialization, structural variables, and methodological issues. Section 3 contains documentation relating to the conference--correspondence, the program, and a participants' list. Section 4 contains a collection of the papers and memoranda presented at the conference. Papers include "Labor Force Issues Circa 1984," by Harold W. Watts and Felicity Skidmore; "Individual Histories as Units of Analysis in Longitudinal Surveys," by Burton Singer; "Childrearing, Work and Welfare: Research Issues," by Harriet B. Presser; and "Events as Units of Analysis in Life History Studies," by Natalie Rogoff Ramsoy and Sten-Erik Clausen. Six memoranda are also presented. (For a review paper, titled "Research Uses of the National Longitudinal Surveys," see CE 019 754.) (Author/CSS)

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A RESEARCH AGENDA FOR THE NATIONAL LONGITUDINAL SURVEYS OF LABOR MARKET EXPERIENCE:

Report on the Social Science Research Council's Conference on the National Longitudinal Surveys, October, 1977

Submitted to
The Employment and Training Administration
U.S. Department of Labor

Parts I to IV

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Center for Coordination of Research on Social Indicators
1755 Massachusetts Avenue, N.W.
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May, 1978

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U.S. DEPARTMENT OF HEALTH,
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16. Abstracts This report on SSRC's conference on the NLS is divided into four sections; the first describes the rationale and background for the conference; the second gives an overview of the conference proceedings; the third section contains documentation relating to the conference--correspondence, the program, and a list of participants; the final section is a collection of the papers and memoranda presented at the conference. The conference produced a wealth of research ideas which could be addressed by a study such as the NLS, although it did not produce a sense of the priorities which should be given to these ideas, a task which remains for NLS researchers. Nevertheless, a set of issues to which the planners of the NLS should give serious consideration did emerge. These issues are discussed in the second section of the report, which organizes them around four topical areas: work and family; labor force socialization; structural variables; and methodological issues. Among the papers in the final section is one on the research uses of the NLS which includes an extensive bibliography of work drawing on the NLS data base.

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I. THE PLAN AND PURPOSE OF THE CONFERENCE

The National Longitudinal Surveys

The National Longitudinal Surveys of Labor Market Experience (NLS) were initiated in 1965. In that year the Labor Department's Office of Policy, Evaluation, and Research contracted with Ohio State University's Center for Human Resource Research (CHRR) and, separately, with the Census Bureau, with the latter taking responsibility for sample design and data collection and the former taking responsibility for development of the study design, development of the instruments, data analysis, and reporting.

The primary purpose of the NLS has been to analyze sources of variation in labor market behavior, with emphasis given to policy relevant research issues. Since resources would not permit coverage of the entire labor force, four cohorts were selected as being ones facing unique labor market problems of concern to researchers and policymakers alike. Two young cohorts, men and women 14-24 years old, were selected because of the problems associated with the preparation for, initial entry into, and adjustment to the labor force. Women 30-44 years old were selected because of the problems associated with reentry into the labor force by women whose childrearing responsibilities had diminished. Finally, men 45-59 years old were selected in order to study factors associated with their declining labor force participation, such as skill obsolescence, health problems, and age discrimination.

Data have been collected over a ten-year period for each cohort, beginning in 1966 for the male cohorts, in 1967 for the older women, and in 1968 for the younger women. The sample for each cohort was designed to represent the civilian noninstitutional population of the U.S. at the time of the initial survey. After an initial personal interview, data were collected annually or biennially through a combination of personal interviews, mail surveys, and telephone interviews.

The questionnaires have covered a broad range of variables related to the respondents' labor market experience and social and psychological characteristics. The content of the questionnaires has varied from year to year, yet a number of items have been repeated, producing time series data for some of the content.

In addition to its responsibilities for analysis and reporting, CHRR has made the data available to the research community in the form of public-use tapes and supporting documentation. Thanks in part to this arrangement, the NLS, designed for a broad range of research on labor force behavior, has come to be used by researchers from several traditions within economics and from many social science disciplines, and has become a major resource for research on social change. The NLS data have been used to produce numerous reports and publications not only by researchers at CHRR, but also by an even greater number of outside researchers.

The usefulness of the NLS for economists and other social scientists interested in the study of social change has been enhanced by the decision, in 1977, on the part of the Employment and Training Administration of the Department of Labor to continue support for the NLS for at least five more years. This decision embraces continued collection of data from the original four cohort panels and the addition of two new youth panels of men and women aged 14-21. In the two new panels, increased emphasis will be placed on understanding the effects of employment training, particularly the effects of formal training programs of the various levels of government.

The Social Science Research Council has had a longstanding interest in studies such as the NLS, an interest which has extended both to labor market research as a substantive area and to longitudinal surveys as vehicles for studies of social process and social change.[1] Recently, under the stimulus of Robert Hauser, the Council's Advisory and Planning Committee on Social Indicators has been expressing strong interest in these potentials of longitudinal surveys, and has, as a consequence, taken an active interest in the development of plans for the NLS. Moreover, the NLS Project Director, Herbert Parnes, has for some time been interested in a review of the accomplishments of the NLS.[2] Following conversations between Howard Rosen, Director of the Office of Research and Development of the Employment and Training Administration, and Robert Parke, Director of SSRC's Center for Coordination of Research on Social Indicators, the Employment and Training Administration suggested that SSRC prepare a proposal to hold a conference on the NLS with the purpose of bringing together a variety of social scientists to examine the NLS. Both the Labor Department and the Council saw the extension and expansion of the NLS as providing an opportunity for taking stock of the research that had been done and for planning ahead. The aim was to outline productive directions for the NLS in the next five years from the point of view of research on specific labor market issues and from the broader perspective of research on social change.

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[1] Several SSRC committees over the years have dealt directly or indirectly with labor market issues. Included among these are the Committee on Labor Market Research (1943-1956) and the Committee on Manpower, Population, and Economic Change (1965-1968). Among the products of the former committee are two monographs on labor mobility, one of which was written by Herbert Parnes, who is the Project Director for the NLS study at CHRR. See Gladys L. Palmer, *Labor Mobility in Six Cities: A Report on the Survey of Patterns and Factors in Labor Mobility, 1940-1950* (New York: SSRC, 1954); Herbert S. Parnes, *Research on Labor Mobility: An Appraisal of Research Findings in the United States* (New York: SSRC, 1954).

[2] Herbert Parnes produced a brief overview himself for the National Commission for Manpower Policy. See Herbert S. Parnes, "The National Longitudinal Surveys: Lessons for Human Resource Policy," in *Current Issues in the Relationship between Manpower Research and Policy*, National Commission for Manpower Policy, Report No. 7, March 1976.

Conference Planning Meeting

SSRC convened a planning meeting on May 9, 1977 to determine the topics which ought to be covered by the conference and to suggest the people who should be asked to participate in various ways.

Specifically, the planning meeting addressed the following questions:

1. What important substantive questions concerning the life cycle and work can be answered with longitudinal data?

2. Who is best qualified to speak to these questions, providing comment upon:

   a. The types of data required to answer these questions and the extent to which such data exist in the NLS or elsewhere?

   b. The analytical strategies which may be brought to bear on these questions?

   c. The implications of answers to the foregoing for the plan of the NLS, its content, sample design, and other attributes?

Participants in the planning meeting included representatives from CHRR, the Department of Labor, the NLS research community, SSRC, and other social scientists with relevant expertise. (A list of the participants is included in the section on Documentation.)

Specific Objectives of the Conference

From the May 9 planning meeting, and subsequent discussion, four specific objectives for the conference were set:

1. Review previous work. The conference should provide a comprehensive review of research based on the NLS. It should serve as a basis for identifying important work which ought to be extended, content which has been underutilized, and future research issues which are emerging out of previous work.

2. Identify new directions. Recent social changes, for example increased female participation in the labor market, changing family structures, and changing sex-role definitions, have greatly increased the importance of certain research issues for the years ahead. The conference should identify these issues and the means by which the NLS can address them.

3. Suggest analytic strategies. The research potential of the longitudinal nature of the NLS data has not been fully realized. Increased attention should be given to analytic methods by which its longitudinal aspects can be exploited.

4. Comment on survey content. In light of the first three objectives, the conference should provide commentary on the content of the NLS questionnaires and make suggestions for modification of existing content and introduction of new content.

The conference planners expected that the conference would also contribute toward the more general goal of fostering the scientific study of social change by broadening the awareness in the research community of the NLS and its products and potentials, by stimulating greater utilization of existing NLS data, and by broadening the community of researchers ready to analyze forthcoming NLS data.

Selection of Conference Participants

It was felt that the goals could best be met by a relatively small conference which would allow and encourage full participation by all. The number of participants was limited to about 50 and most participants were assigned formal roles as presenters of papers or memoranda, as discussants, or as rapporteurs.

Participants were selected from the relevant disciplines, to perform a variety of functions. Some participants were selected for their unique association with or use of the NLS data; such users, it was felt, would be best able to identify gaps and problems with the data set. Some were theorists who could suggest how the NLS could be used or adapted to test evolving and already developed theory. Others were individuals with strong substantive interests who were called upon because it seemed clear that the NLS had the potential to make important contributions to research in pursuit of those interests. And some were included who could bring to bear upon the NLS relevant experience in the analysis of other longitudinal data. Finally, the conference included representatives of the institutions most closely involved with the NLS -- CHRR, the Department of Labor, and the Bureau of the Census.

Conference Format

The conference was organized into plenary and concurrent sessions. The plenary sessions were generally oriented around the broader and more general topics, such as the review of research on the NLS and the identification of future research issues, and the concurrent sessions around more specific substantive topics. The final plenary session included summaries and reconsiderations from the concurrent sessions. Each session included presentation of a paper (in the initial plenary sessions) or a memorandum (in the concurrent sessions); prepared commentary, usually by two discussants; and open discussion. The papers and memoranda were distributed by mail to all participants in advance of the conference.

II. CONFERENCE PROCEEDINGS: REVIEW AND COMMENTARY

James L. Peterson

Introduction

The National Longitudinal Surveys of Labor Market Experience (the NLS) were originally developed as a study of labor force behavior from several disciplinary perspectives. Consequently, the initial questionnaires contained items of interest to social psychologists, demographers and sociologists, as well as to economists, and interest in the NLS on the part of social scientists outside the field of labor economics has broadened even further over the years. Sweet pointed to a possible explanation for this broadening, and in so doing perhaps expressed one of the main reasons for the broad perspective taken by conference participants:

> These surveys have, it seems to me, changed greatly in their character, moving from a well-focused study of the dynamics of labor force behavior toward being an "omnibus" social science survey. I do not mean to criticize this evolution. Indeed, this kind of an evolution might well have been expected for the simple reason that virtually all of life's activities are implicated either as cause or effect in the labor force behavior of men and women.

At the same time the community of social scientists actively working with the data has broadened. One of the objectives of the conference was to strengthen and extend this broad range of interest in the study.

The conference focused on the NLS study -- its achievements and potentials. Yet because of the broad range of research questions for which the NLS might be considered an appropriate data base, and the variety of disciplines among the participants, issues and ideas were discussed which have import beyond what any one study could ever hope to accomplish. Although the fundamental substantive focus of the NLS is the explanation of labor force behavior, discussion at the conference often took on a somewhat broader perspective in which labor force participation was viewed in terms of what, following Duncan, might be termed the socioeconomic life cycle.[1] The aim of this review is to capture some of the main conference themes within this socioeconomic life cycle perspective, and to present specifics on the NLS in a structure organized by this broader set of ideas.

From the perspective of the socioeconomic life cycle, labor force behavior can be seen as imbedded in a set of social structures and social processes organized around the progression of the individual through various life stages. These social structures make certain patterns of progression more frequent than others. The particular pattern experienced by an individual, and the specific stage that individual occupies at a given time, have important consequences for labor force behavior. We can reasonably expect such variables as labor force participation, attachment to work, occupational achievement, and the meaning attached to work to be strongly influenced by the sequence and timing of different life cycle stages.

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[1] See Otis Dudley Duncan, "Discrimination Against Negroes," The Annals, 371, May 1967, pp. 85-103.

The original design of the NLS explicitly recognized the importance of life cycle stages for labor force behavior. Lacking the resources which would be required to mount a study of the entire labor force, the designers of the NLS chose specific age-sex cohorts of individuals for study because it was recognized that each faced some unique labor market problems: older men because they are approaching retirement; mature women because many are returning to the labor force after being out to care for growing children; and young men and women because they are just becoming established in the labor force.

From a life cycle point of view, the relationship between family and work is especially important. It is moreover an area of research which has suffered neglect. Yet a person's family status, the relative importance to the individual of family and work, the size of family, and the work status of a spouse, to name just a few variables, can all be expected to greatly influence labor force behavior.

A life cycle approach also leads one to take a long-term perspective on labor force behavior. If life cycle stages and patterns are strongly related to labor force behavior, then we must look for determinants of that behavior which may develop over a long period of time. A particularly important aspect of this long-term perspective is the process by which a person's work attitudes and skills are developed -- what may be labeled labor force socialization. It is evident that the family -- primarily the family of origin -- plays an especially critical role in this process.

Both of these themes -- the process of work-family interaction, and the process of labor force socialization -- are developed below. Another important set of ideas fits less directly under the life cycle perspective, yet is important for the understanding of labor force behavior. These ideas center around the structural (as opposed to the individual-level) determinants of labor force behavior. This theme is developed in a third section below.

The final section is devoted to a discussion of some of the methodological issues raised at the conference that are relevant for longitudinal and life cycle research.

Work-Family Relationships

One's labor force behavior cannot be understood in isolation from life's other major domains: family, childrearing, community involvement, friendships, and leisure activities. The importance placed on and the meaning derived from work can be properly understood only if work is viewed in relation to these other areas of activity. Furthermore, one's placement in sets of social relationships associated with these other spheres -- most notably the family -- both provides options for and places constraints on labor force activity. The inter-relatedness of these various domains was a main conference theme, especially in the presentations of Morgan and of Featherman and subsequent discussions. As expressed by Morgan:

> Massive changes in birth rates, population, labor force participation, family composition, and the labor market combine to demand better understanding of the processes by which people enter and leave the labor market, sort themselves into particular jobs, job locations, residences, and families. Much progress has been made in studying separate aspects such as job search, unemployment, family planning, mate selection, and even the effects of programs and policies on the incentive to work. It is the argument of this paper that individual decisions in these areas are commonly joint decisions, with multiple objectives and constraints, and often need to be studied as such.

This inter-relatedness becomes particularly crucial in the ages from the mid-teens to the early twenties when major and consequential decisions must be made in many of these domains. The individual's preferences, skills, and perceptions, the available opportunities, and the order in which choices are made must be taken into account in seeking an explanation of the ways in which people sort themselves into various social and economic categories. As Morgan argued, "with such a complex search for several things, subject to various objectives and constraints, it seems unwise for the researcher to focus on any one of them without at least using the others as part of the explanation."

Morgan organized much of his discussion around the notion of "joint decision" -- decisions that influence one another. He stressed that an individual's decision concerning job selection is part of a larger decision-making process in which this decision both affects and is affected by familial and residential considerations -- selection of a marriage partner, that partner's job selection, their decisions concerning family formation (i.e., children), and their choice of place to live. Most of the discussion of this notion of joint decisions centered around the relationship between work and the family, with the point that more than one individual participates in most of these decisions being emphasized. As expressed by Ryder:

> The typical life course proceeds with the merging, by marriage, of two individual familial sequences. This is at least a joint decision, rather than one that can be conceptualized as responsive to the preferences and priorities of any one particular individual. All choices made subsequent to that decision (in a causal rather

> than a temporal sense) are joint not only with respect to occupational implications, but also with respect to both of the two major parties involved. Subsequent to the birth of the first child (again in a causal rather than strictly temporal sense) choices presumably incorporate some weighting of the interests of the child. Not only does one want to have a sense of priorities, within the individual being questioned, but also a sense of the weights that will be attached to the priorities of all affected individuals, in coming to the single joint decision.

Although there was general agreement about the importance of the work-family relationship, there were differing opinions concerning the importance of the residential location decision. Ryder felt that decisions concerning leaving home and quitting school are likely to be a more important integral part of the decision-making process than is the residential location decision, and suggested that the familial and occupational considerations should be broadened to encompass these decisions. In Ryder's view, "the familial and occupational vectors are much more important than the residential vector. One reason for that view is that I think the description of social change during the process of modernization is most conveniently conceptualized as a gradual shift of priorities from the familial to the occupational sphere."

The interdependency of family and work exists throughout the life cycle. In the childhood years the family of origin serves as a primary agent of socialization of the future work force. This is the subject of the following section, so will not be pursued further here except to emphasize parents' central role in developing children's work attitudes and expectations, especially as bound up in sex roles, and the role parents may play in developing initial job skills and in providing resources for education and/or for obtaining jobs.

The work-family relationship is perhaps most evident and most complex in the critical years of transition to adulthood. The order and age at which certain decisions or events occur can be expected to have long-lasting effects. Of particular importance are the following: selection of a marriage partner, first job, birth of the first child, and amount of education obtained. The detrimental effects of early parenthood on subsequent socioeconomic achievement, particularly for women, are well known.[2] But what effect does the timing of marriage have on the amount of education received (or vice versa)? Does this differ by sex? What effect does the amount of education received have on the characteristics and qualities of the marriage partner selected, and how do these relate to subsequent marital stability, family size, and occupational achievement for both the husband and wife? The recent upturn in the age at first marriage raises some questions about this transition period. Sweet, for example, asked:

> First, exactly what are young, unmarried adults doing? To what extent are they living independently of the family of orientation? What effect does the length of the interval between the completion of education and marriage have on subsequent labor force and familial behavior? Does this effect depend on the activities and living arrangements during this interval?

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[2] See for example, Frank F. Furstenberg, Unplanned Parenthood: The Social Consequences of Teenage Childbearing (N.Y.: Free Press, 1976).

Although research is beginning to provide partial answers to some of these questions, work needs to be done to consolidate and extend this research through developing more comprehensive theories or models. Particularly lacking, as Sweet pointed out with respect to the question of teenage childbearing, is a good understanding of the antecedents, as opposed to the consequences, of some of these choices and events.

The following comment -- again by Sweet -- expresses the general nature of the research questions which need to be addressed with respect to the transition to adulthood:

> There has to date been little study in the United States of the process by which children leave the parental household. The one notable exception is the work done with the Michigan panel data. More study of this important process from the point of view of the parental household, as well as from the point of view of the young adult leaving the household, would be quite valuable. There are many forces affecting this transition, including the economic resources of the young adult, the economic resources of the parents, the housing situation in which parents are residing, the social environment of the parental household, the educational status of the child.

Beyond these transition years, the family is also the locus of changes which affect the labor force behavior of the current generation of workers. The interdependence of labor force behavior and the emerging types and changing frequencies of family structures needs further research.

Continued increases in the last decade in the rates of divorce and, possibly, of separation have led to an increase in the number of families headed by a single parent, usually female. The process of marital dissolution also brings additional persons into the labor force, though it is not entirely certain what the causal linkages might be. At what rate do those who find themselves newly divorced enter the labor force, and is their entry primarily out of economic necessity? Do women in failing marriages who are already in the labor force feel more independent of their husbands and therefore more willing to terminate the marriage? Or do those who anticipate a divorce or separation try to secure a job before the break-up occurs so as to provide themselves with some means of support? This is clearly a complex issue in which any one of the above hypotheses could be true for some subset of women. The dynamics of these processes and the characteristics of the persons or situations in which they apply need careful study. Toward this end, longitudinal data on the timing of events in these processes are crucial.

One of the major variables which may underlie the process of marital dissolution is change in sex-role norms. Sweet noted that the division of labor and the distribution of power within households appear to be changing. The proportion of women working continues to rise, especially among women with preschool children, a group whose labor force participation rate has traditionally been quite low. Time use studies show that in comparison with previous years wives are spending considerably less time in childcare and family maintenance activities, whereas husbands have changed little.[3] What are the major factors accounting for these changes? How and to what extent may these changes foster further changes in the same direction? What is the effect of the experience of work on women's future desire to work and probability of working?

Although social expectations with regard to women appear to be changing, so that it is increasingly acceptable for wives and mothers to work, expectations for men do not appear to have undergone much change. Even when a wife works, the husband is still expected to contribute a major share -- preferably more than half -- to the household income. It is still the case that very few husbands voluntarily take on the homemaking and childrearing roles in lieu of labor force participation while their wives work to support the family. It appears that the work of married women is viewed as a supplement to, not a substitute for, the husbands' work. In addition, Douvan pointed out that it is still generally expected that women should "work only on the condition that work-family integration is possible; their work commitment is contingent on its fitting with family goals."

Changes in women's roles may require some adjustment in men's roles as well. Trend data from the NLS which would chart continuities and changes in both men's and women's roles are needed in order to describe and understand the adjustments which take place. Moreover, the consequences of changing roles for other aspects of labor force activity need to be studied. Where both husband and wife seek substantially full-time and permanent employment, there may be consequences for the career mobility of each. Career advancement often requires geographic mobility, especially in higher status jobs. Since a move leading to advancement for one partner may restrict the other's opportunities for advancement, some sacrifice in advancement is, in the aggregate, more likely for dual-career families than for single-career ones. In this circumstance, what decision-making processes and expectations are developed within the family to guide the development of both careers? The impact of dual-career families may be even broader, as suggested by Miller:

> If men in their thirties are now making job decisions with respect to hours of work, geographic location, or other factors within the constraints of their wives' jobs, then it is likely that some aspects of jobs will become increasingly important and others less so.

Location, for example, might become more important because of the need to find two jobs in the same area. With two earners in the family, job security might become less important and the intrinsic satisfaction derived from work more so. In any event, as changes such as these occur and become more frequent, there is likely to be a significant impact on the way people sort themselves into jobs.

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[3] See for example, John P. Robinson & Philip E. Converse, "Social Change Reflected in the Use of Time," in Angus Campbell and Philip E. Converse, eds., The Human Meaning of Social Change (N.Y.: Russell Sage Foundation, 1972), pp. 17-86.

In the foregoing we have sketched a broad set of variables and relationships which must be addressed in studying the work-family relationship. Breadth is desirable in sketching a research agenda. However, individual research projects such as the NLS must be more circumscribed. Ryder said it well:

> There are several senses in which all of the preceding is obvious: life is complicated, influences abound at several levels simultaneously, measurements are difficult to make and difficult to assess after they have been made, and respondents can be perverse in providing information. But there is a general conclusion I draw from this--that we should keep the scope of our inquiries modest in dimensions, and attempt to measure and relate just a few things at a time, doing what we do with the utmost of care and circumspection.

Labor Force Socialization

Much of the research on labor market experience has focused on processes and effects which take place within a moderately short time span, as in most studies of unemployment, job mobility, discrimination, and use of time. Not surprisingly, the predominant study design is cross-sectional with retrospective questions used to develop whatever time dimension there is. Many of those studies which do take a longer term perspective, such as sociological studies of intergenerational mobility, examine only a few basic demographic background variables from the earlier generation. What is underemphasized in this line of research is more detailed attention to the long-term processes by which occupational and educational skills and aspirations are developed, sustained, and changed, and are subsequently translated into actual educations, jobs, and careers.

Watts and Skidmore argued that such a long-term perspective is needed in labor market research, a theme echoed throughout the conference and applied to the NLS. A life cycle framework in studying labor market behavior leads naturally to this long-term perspective. The perceptions, experiences, and constraints which influence educational and occupational behavior are in large measure a function of life cycle stages.

Parnes concurred with Watts and Skidmore in their call for a long-term perspective:

> It is terribly important, I think, for both researchers and policy-makers to heed their plea for greater emphasis on long-run perspectives in understanding and dealing with labor market problems. In a policy paper that I prepared last year for the National Commission for Manpower Policy I argued that human resource policy

has given "inadequate emphasis to long-run as compared with short-run programs...that relatively too much attention has been given to serving the disadvantaged, and relatively too little attention to preventing labor market disadvantage from developing."

One of the objectives of taking a longer-term perspective is to gain a greater understanding of the processes yielding new generations of workers. What influences do the perceptions, skills, and aspirations formed in childhood and adolescence have on subsequent occupational behavior? And how long lasting are these effects? How and to what extent are the attitudes and work experiences of parents transferred to their children? Whatever the answer to these questions, it is reasonable to expect that much of the individual variation in labor market behavior is to be explained by processes at work prior to entry into the labor market.

The importance of this early labor market socialization for subsequent occupational behavior underscores the need to study this behavior in the context of the family and the life cycle. The family of origin is the primary agent of this initial socialization. Yet socialization continues throughout the life cycle--through educational and subsequent labor market experience.

The work experience and attitudes of parents may be expected to have a strong impact on the values toward work and the work skills which their children form prior to entry into the labor force. What contribution, for example, did the experiences of parents in the Depression have on the work attitudes and expectations of those who entered the labor force shortly afterwards?[4] Are the attitudes of parents passed along in a fairly stable fashion to their children, or do children react by forming contrasting attitudes? Are there stable differences in socialization between the sexes and among various ethnic, religious and income groups? Better understanding of such questions requires from the NLS a more detailed examination of the processes by which this socialization takes place within the family.

Perhaps the most basic question is how a child's initial perceptions, values, and aspirations with regard to work are formed within the context of the family. Work, however, must be understood in relation to other basic areas of life's activities -- such as family, parenthood, leisure activity, and peer relationships. The relative value of each area can be expected to change to some degree throughout one's life cycle. Nevertheless, perceptions, values, and skills held at the time of initial entry into the labor force are likely to be especially important in terms of their long-run consequences as they will be influential in determining the timing and level of entry.

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[4] Some insights on this issue may be found in Glen H. Elder, Jr., Children of the Great Depression (Chicago: University of Chicago Press, 1974).

Just how and to what extent do parents transmit to their children values and aspirations with regard to work and other of life's basic domains? Because the NLS study does not include samples of young children -- those of the age when such attitudes are initially formed -- participants at the conference did not devote much attention to this question. Nevertheless some tentative thoughts relating to it were expressed by Douvan:

> The parents' contribution and social support for the child's education is interesting as a possible determinant of the child's occupational attainment, but it can also be thought of as an index of the parent-child relationship as well -- the extent to which parents communicate with their offspring and actively participate in planning their future during the crucial formative years. Such an index may be a powerful predictor (at least for males) of the young person's identification with the goals of the parents and thus of his social class aspirations. Youth who do not share a close interactive relationship with parents may be less likely to achieve high occupations. But it may also be that close identification with the father will lead the boy to stable class aspirations (I want a life like my father's) rather than to upward mobility. The situation for the young female is different: since the mothers of these young women will have lived their adult lives in the traditional status system in which a woman's status was defined by her husband's attainment rather than her own occupation, the daughter can identify closely with the mother yet aspire to a class position and work life quite different from the mother's -- without that aspiration standing as an implicit rejection of the mother.

Indeed, if the NLS could provide a better understanding of the ways in which parents' own work experiences serve as models (either positive or negative) for their children, it might go a long way in helping explain the association between parents' socioeconomic background and their children's socioeconomic achievement.

Educational and occupational aspirations are among the values developed during childhood and adolescence which are of particular importance for socioeconomic achievement. These are issues around which many parents form strong expectations--expectations which are likely to be communicated in direct as well as subtle ways. It is important to understand how these expectations are communicated to their children, how early children develop their own expectations, and how these expectations change as the time for educational and occupational decisions nears.

Another aspect of early socialization of importance for socioeconomic achievement is the development of sex-role attitudes, especially those related to child care and work. It is evident that we are in an era of rapid social change in this regard; a great deal of conscious re-thinking and public debate is centered around the issue of the appropriateness of previously held sex-role norms. How are the division of labor and distribution of power in the family changing and how do they affect sex-role socialization in children? With regard to female children, Douvan suggested that:

> The interaction of mothers and daughters is likely to change in areas related to work and achievement. Traditionally fathers have been crucial as work models for male children, and women have served as models for daughters in family roles. With the growing expectation that women too will spend most of their adult lives in the work force, there may be some dislocation in the value transmission line between mothers and daughters.

Certainly the primary mechanism through which sex-role socialization takes place is through the role models provided by parents. If so, the continuing increase in the proportion of female-headed families and in the proportion of mothers (particularly mothers of young children) who are working may be expected to exert a strong influence on the socialization of their children. Just how socialization is affected may be influenced by such factors as the type of work, the amount of time each parent can spend with the child, and the child-care arrangements which are used.

In a cautionary note, however, Parnes pointed out the difficulty of measuring parental inputs of the type we have been discussing:

> To acknowledge the importance of current nurturant services to future productivity provides few clues as to how to identify and measure the specific inputs; which makes the greater contribution to the future productivity of the child--an hour's worth of reading or an hour's worth of hiking? Or, does the answer depend on what is read or where the walk takes place? Or, is the really important factor the nature of the interaction between parent and child in either activity?

Socialization includes providing children with some actual experience with the various roles which they are learning. With regard to labor force socialization, parents develop some initial labor market skills in their children. This can occur through various household tasks and responsibilities, as well as through the kinds of activities, both formal (such as organizations, neighborhood, jobs, etc.) and informal, in which parents encourage their children to participate. It was suggested at the conference that this issue could be addressed by the NLS by the collection of data on the use of time by both parents and children.

The question of the contribution which parents may make to the development of labor market skills in their children is of interest in the context of long-term social change. Ryder noted (in comments quoted above) that a primary feature of social change associated with modernization has been a shift in priorities from the familial to the occupational spheres. This has been associated with the decline of the family per se as a productive unit. Given these changes, it might be expected that the role of the family in teaching labor market skills has also declined, or at least changed dramatically. Which teaching functions has the family abandoned in this area, and which ones has it retained? Which new ones, if any, has it taken on in response to changes in the kinds of labor market skills needed? It might be suggested, for example, that much of the burden of transmitting skills has shifted to other institutions. If so, the role of the family may have become that of providing its children with the necessary motivations and resources. In that role the family may serve mainly to orchestrate and support a progression of experiences which its children obtain in institutions and settings other than the family.

Chief among these other institutions and settings is, of course, the educational system. As a person proceeds through adolescence and into young adulthood, the importance of the educational system for socialization increases. The ample literature on the relation of educational inputs to occupational outputs will not be reviewed here nor was it a central topic of discussion at the conference. However, selected research issues falling within this topic were raised as being particularly relevant in the context of socioeconomic socialization and in need of research attention.

There is a need for better understanding of the role of non-formal and non-traditional kinds of education in the development of labor market skills. Suter pointed out that the growing diversity of educational programs renders the usual measure of educational attainment, in terms of years of completed schooling, less useful. He argued, for example, that "two years of completed college no longer is indicative of the type of education received since junior colleges today offer widely differing curriculums which may affect the occupational choices of graduates." More attention is needed to the causes and consequences of this widening array of educational opportunities. What specific range of skills, attitudes, and knowledge--that is, "human capital"--does each kind of educational experience develop? What occupational constraints and opportunities arise out of these differing experiences? Parnes, for example, pointed to an unresolved issue in the economics of vocational education on which the NLS could provide data -- does vocational education actually pay off?

Even less formal kinds of "education" may be important forms of socialization. These are the kinds of activities which families may "orchestrate" in the sense introduced above. To tap these kinds of activity, Michael suggested studies of the use of time by youth, particularly those not yet in the labor force. Among those activities which may be particularly important for socialization is participation in formal organizations. Though such activities may indeed teach specific skills, their greater impact may be through the formation of attitudes and values. Going further, Sullivan argued that besides looking at formal participation by youth in organizations, researchers should look at volunteer work as an introduction to the world of work. The problem of sorting out causal relationships in this area may be difficult, however, as self-selection is likely to be particularly important. Nevertheless, social participation and volunteer work may be important mediating variables as they confirm, strengthen, or further develop previously held attitudes, and teach some general and perhaps even specific job skills. Such activities may, in fact, play an important role in occupational choice and in developing occupational and educational expectations.

Early experiences with job-searching and with part-time and summer jobs may be another activity with important consequences. Though such jobs are unlikely to teach specific job skills which will be of use later, they may teach more general job skills and attitudes which are important for obtaining and maintaining a wide variety of jobs. But another function was mentioned by Presser when she suggested that difficulties encountered in looking for summer jobs may be a motivating factor which operates to raise educational aspirations. Much the same could be said of the actual job experience itself.

The role of the family in developing educational aspirations in its children has already been mentioned. But its role in helping its children realize the levels of education to which they aspire also deserves attention from NLS researchers. Stafford asked, for example: "How much do families continue to support children of college age? Do they provide income support only while attending college?" While the ability of parents to support the higher education of their children has long been recognized as an important aspect of social mobility, less attention has been paid to their willingness to provide support and the extent to which their willingness (or even insistence) affects the educational plans and experiences of their children.

Explicit in most of the discussion at the conference, and implicit in the paragraphs above, is the notion that education is a form of human capital development, a concept which has guided much NLS based research. Some questions raised by this conceptual framework which have not been sufficiently explored have to do with the rates at which different kinds of education depreciate. Changing patterns in the demand for labor will, of course, affect the rates of depreciation of different kinds of work skills which may be imparted as part of the educational process. But is there some permanent minimum value of a given kind and level of education? Or is the value of education primarily in securing a certain level of entry into the labor force? These questions could be studied using NLS data by comparing the entry level jobs of those entering the labor market immediately after completing their education with those who wait for a period of time (taking into account the capital formation value of the activities engaged in during the period of unemployment).

Although education is most often viewed as a form of capital formation, it was also pointed out at the conference that certain forms of education, particularly some adult education, are primarily a form of consumption. In studying the effects of education on socioeconomic achievement and socialization, care should be taken to differentiate between these kinds of education.

Labor force socialization, as with other forms of socialization, does not end with the attainment of adulthood. It continues, perhaps with less intensity, through the remaining stages of the life cycle. Much of the discussion of this issue at the conference centered around the memorandum presented by Douvan.

Her presentation was organized around three social-psychological issues, which have already been discussed above in relation to childhood socialization:

a. the meaning of work and its determinants, including broad changes in the culture over time

b. the relationship between work and other life areas, particularly family life

c. shifting norms about sex roles and women's participation in the productive system.

To these three issues we might add:

d. the development of work skills through education and experience

e. perceptions about the labor force, its structure and functioning.

The question which needs to be addressed in terms of these five issues is how the values, skills and perceptions which a person brings to the work situation (or which keep the person from work) are maintained, strengthened, weakened, or changed as a result of work experiences or social and cultural factors.

Experiences deriving from the stages in the life cycle may be one important source of change, independent of but interacting with work experiences. Marriage and family building, for example, create needs, pressures, and satisfactions which have the potential of greatly changing previously held values and patterns. They obviously induce many women to leave the labor force, while inducing others to join; they reduce the relative importance of work for some, and increase it for others; and they may induce reevaluations in some individuals of the meanings assigned to work. The subsequent shrinkage of the family and the approach of retirement age still later may also operate to induce change in yet other directions. Douvan sketched out some possibilities with regard to the attachment to work:

> Is it possible that attachment to work changes over the life cycle so that the young demand intrinsic reward from work and care less about hours or high pay, the young middle-aged (absorbed with family responsibilities, demands, and pleasures) want high pay and reasonable hours more than intrinsic gratification, and the middle-aged want intrinsic reward and reasonable hours to allow greater self-development and broadening of life-satisfaction? Do people, in other words, change the role they assign work in self-definition and life-satisfaction as they move through various life stages? Do we come to appreciate the multiplicity of life as we get older (cf. the midlife crisis and midlife change research) or do we grow increasingly monomanic--deciding that life is work or fame or money or whatever individual value we fix on?
>
> Clearly individuals vary in this: some broaden and some narrow their goals and gratifications as they grow older. We can profitably look at patterns of change in attachment to work over life stages (always controlling for job class) and see if it is possible to predict such outcomes as psychological stress, physical mobility, and life satisfaction.

What is needed from the NLS is a better understanding of the factors which lead some individuals to change one way, and others another. Among those factors might be socioeconomic class background and current status, interaction patterns and satisfactions within the family, and the initial skills and values brought to the work situation and their relationship with actual work experiences and satisfactions.

Meanings and norms associated with labor force behavior may also be developed, maintained, and changed by experiences on-the-job, as Shore suggested:

> With regard to the "meaning" of work (which I would take to include motivational considerations), it might be useful to distinguish respondents in terms of whether they value work/employment largely in terms of its instrumentality for achieving things outside of work or as an experience of personal significance in its own right. It should be instructive to learn, if there are motivational "types," how these dispositions affect and are affected by labor market experience.

The study of labor force socialization should also include attention to intergenerational changes in the process and results of socialization. Differences, for example, in the attachment to work of two different age cohorts may be due in part to life cycle stages (intracohort change) and in part to generational differences (intercohort change). Longitudinal studies such as the NLS will be required to make these distinctions. Even so the task will not be easy: it appears that intracohort changes are not monotonic, and vary according to such other variables as social class, race/ethnicity, and sex.

Nevertheless it should be possible to detect some of the major long term changes in the development of work perceptions, skills, and norms, and then to relate them to other social changes and changes in the process of socialization. Douvan suggested what some of these intergenerational differences might be:

> Within occupations or occupational classes, can we demonstrate generational differences in the attachment to work? Do the young, who have grown up in a time when traditional work values have been radically challenged, demand more intrinsic gratification from work (as, for example they seem to do in school, claiming that they cannot learn what is not interesting to them or has no relevance)? Or do they, on the other hand, devalue the work life itself and ask only that work provide the money and free time (i.e., the extrinsic rewards) which make possible satisfaction of other self defined needs outside the productive system?

In conclusion, if one is to understand labor force behavior, it is necessary to trace over time the conditions under which labor skills and attitudes are developed, maintained, and changed, and it is necessary to place work in a wider context which encompasses the other major life domains, and to understand the changes in these domains which are associated with progression through the life cycle. Only in this way can one more fully understand the characteristics which the person brings to the labor market, and which help shape behavior there.

Yet the characteristics which workers bring to the labor market constitute only part of the explanation of labor force behavior. Equally important are the characteristics of the available jobs and work situations and the structural factors which determine their distribution. We turn next to a consideration of these kinds of variables.

Structural or Demand Side Variables

In the previous section we argued that a longer-term perspective is needed by the NLS in the study of the socioeconomic life cycle. A broader frame of reference is also needed. Much of the research on labor market experience, stratification, and mobility, the NLS included, has focused on the individual (and occasionally the family) as the unit of analysis. This has been an appropriate and productive focus, generating a wealth of data characterizing the individual in terms of various background, social, psychological, and experiential qualities. Yet one brings these characteristics to bear on situations over which one may have little influence. The outcomes are determined as much by the characteristics of the situation as by the characteristics of the individual. Conference participants called attention to this repeatedly and urged that longitudinal studies such as the NLS give more attention to the measurement and analysis of structural variables. In the words of Miller:

> We seem all to be in agreement at this conference that longitudinal surveys should have as at least one focus of their concern the analysis of how social and economic change occurs. The problem is to determine what are the structural changes that are taking place and whose interactions with individual behavior we wish to observe.

One of the main structural factors influencing labor force behavior is the level and distribution of the demand for labor itself. This subject was not a focus of the conference, and consequently it will not be developed here.[5] Rather discussion focused on the consequences for individual behavior of structural variables as they interact with individual characteristics.

This theme was developed in the session organized around a paper presented by Rosen on the quality of working life. Rosen's main point was to argue for the inclusion in the NLS of questions describing the nature of the work environment, part of the demand side of the market:

> The panel data that we have now are best suited to studying what might be called the supply side of the labor market. They do not tell us very much about the other side of the market, the demand side. Indeed, the very lack of data on the demand side inhibits the development of demand relationships. In any case, I see no reason for being forced to assume that supply is all that matters if it is possible to obtain information that could incorporate a wider class of hypotheses.

He went on to support the need for such data from a policy point of view as well: "If we are going to get any sensible public policies that essentially operate at the level of working conditions, then we had better find out what those working conditions are, and how they interact with the socio-economic characteristics of workers that we can and do measure." There was wide agreement that such data would be useful to researchers with a variety of theoretical and substantive interests, and that it was both feasible and not costly to obtain some of this data by adding items to the questionnaires. Considerable discussion also centered around the possibility of collecting data on work environment from a sample of employers. While many supported the collection of such data in principle, some pointed out practical difficulties in doing so with the NLS -- difficulties with sampling employers, matching employers and respondents, gaining cooperation, and cost.

Participants in Rosen's session, and discussions in other sessions extended these ideas to other contexts. Andrisani pointed out that the demand side of the labor market involves institutional forces and that information about them might permit analysis of the degree to which social and economic institutions serve the social, economic, and psychological needs of individuals. The impact on the individual of the social-psychological structure was the subject of a discussion by Kohn. In the discussion of discrimination, it was recognized that characteristics of the firm such as the hierarchical system, the size, and the interpersonal characteristics of the work groups influence hiring and job mobility. We turn now to a discussion of some of these research issues.

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[5] However a recent article by Spilerman, a conference participant, directly addresses the question of the relationship of the labor market structure and socioeconomic achievement. See Seymour Spilerman, "Careers, Labor Market Structure, and Socioeconomic Achievement," American Journal of Sociology 83, no.3, November 1977, pp. 551-93.

One of the main points made by Rosen was that various social and psychological amenities and disamenities associated with the work situation may be a source of nonmonetary rewards received from work: "The available wage is only one out of a multidimensional set of indexes of employment opportunities that constrain supply and demand decisions. Nonmonetary conditions of work are equally important." A research question arising from this situation is the extent to which the net non-wage amenities operate either as substitutes for or complements to wages. They may, in fact, operate both ways in different situations. If they are substitutes, then wage differentials may be explained in part by differences in amenities. If they are complementary, wage differentials may actually understate the differences in the rewards for work received by different categories of individuals. "Among comparable whites and blacks," Andrisani suggested, "the whites may not only receive a disproportionate share of the better paying jobs, but also a disproportionate share of the jobs with better perquisites."

Research is needed to develop ways of measuring these non-wage amenities, and then determine for what kinds of individuals or in which situations they act as complements or as supplements to wages. In this regard Rosen pointed to some of his recent work in which it was possible to impute employees' implicit valuations of some of the non-wage characteristics of their jobs.

Discrimination is a pervasive feature of our society with profound consequences for individuals' socioeconomic achievement. It is a part of society's structures--its roles and institutions--and the processes by which these structures operate. Discrimination on the basis of race or sex is perhaps the most evident--it receives, at least, the greatest attention from scholars, policy-makers, and the public. But awareness of other bases of discrimination is growing--discrimination on the basis of physical handicaps, age, or life style.

While the concept of discrimination may be clear at this level of generality, its actual observation and measurement at a concrete level is more problematic. This quickly became apparent during conference discussions of discrimination. Dissatisfactions with past and current notions of discrimination were quickly expressed, though more satisfactory definitions were more difficult to formulate. Parnes remarked that:

> Researchers will continue to attempt to identify and quantify labor market discrimination. Survey research should therefore give more careful attention to the development of measures that will contribute to this effort. There is special need, I think, for variables that will help to differentiate between demand and supply factors in affecting differences in occupational distributions between the sexes.

The one point of universal agreement was that the concept of discrimination needs sharpening.

Lillard pointed out that although legal and legislative definitions do exist, discrimination is not a well-defined theoretical concept. He said that despite theoretical models that view discrimination as a taste that discriminators are willing to pay for, it is difficult to translate these concepts into operational measures when one does empirical work.

The NLS measures discrimination by asking respondents to indicate whether they feel they have ever been discriminated against with regard to work. Sullivan drew a distinction between this measure of discrimination, which she labelled subjective, and measures based on independent observation, which she labelled objective. Others pointed out the difficulties of determining the components of subjective discrimination, and the likelihood that these components will vary considerably between individuals and over time.

Current measures of discrimination are more sophisticated than simple descriptions of racial or sexual differences in the relevant variables. Multivariate techniques are used to partial out the effects of various background variables--such as education, experience, and training--which might account for the observed differences. The residual difference, once these other variables have been controlled, is assumed to be due to discrimination, and is used as a measure for it. Yet two areas of dissatisfaction were expressed over this kind of measure of discrimination. First, objections were raised to the measurement of discrimination in terms of unexplained differences--a sort of measurement by default. Discrimination in this sense is merely unexplained variation, an indirect and poor method of operationalization. Presumably with the addition of more and better explanatory variables to the models, the amount of unexplained variation, and hence "discrimination," will decrease.

Second, Lillard expressed the view of many when he argued that greater attention is needed to the problem of accounting for racial and sexual differences in the "explanatory" variables. If income differences between blacks and non-blacks can be partially accounted for by differences in education, why do blacks obtain less education? What are the differential returns to education (or other background characteristics) by race, and what effects does this have on the relative investments in education by race? Although research attention is shifting to these kinds of questions, even this only pushes the explanation back one step.

Another definitional issue raised by Sullivan is the question of the dependent variables in terms of which discrimination is measured. "Sex and race differences in what?" she asked.

> Differences in earnings--especially differences that amount to unequal pay for equal work--are typically used as indicators of employment discrimination. While this is adequate for comparing income streams, it provides little information about the discrimination found in pay that is unequal because of unequal work. Four additional areas--level of occupational attainment, job continuity, job equity, and career mobility (or pace of achievement)--deserve consideration as well.

By discrimination in occupational attainment Sullivan means the differential rates by sex or race at which persons are able to convert their educational background into occupational level. The same concept should also be applied to other background characteristics which measure, directly or indirectly, the development of human capital.

Job continuity refers to differential rates of interruption or reduction of work, through job loss, layoff, or involuntary part-time work. Sullivan uses the term "job equity" to refer to the amount of investment workers have in their jobs -- in terms of seniority, job security, and fringe benefits, especially retirement programs. Finally, career mobility refers to differential rates of advancement, through promotions, added responsibilities, or movement to better jobs with other employers.

Out of the difficulties and frustrations in dealing with the kinds of definitional problems described above, came a recognition of the need for greater attention to the understanding and measurement of the processes by which discrimination occurs. The non-wage areas of discrimination suggested by Sullivan may strike much more closely at these actual processes. Indeed, much of the racial and sexual differentials in income (as opposed to wage rates for specific jobs) can be expected to be attributable to differences in occupational attainment, job continuity, etc.

For example, differentials in occupational attainment and in job mobility are due in large part to the processes by which jobs are found. If many jobs are found through family or friendship networks, as some discussions in other sessions of the conference seemed to indicate, then existing differences may persist simply because of the recruitment method, whether discrimination is consciously intended or not. As Sullivan observed, "friendship networks used in job search are an alternative way of explaining why relatively few women or minorities are hired in a given firm." Are employment agencies or personnel managers color-blind in the assistance they give or in the practices they observe? If not, what processes or structures reinforce and perpetuate the differences in practices? In this regard, both Sullivan and Lillard called for more data from the NLS on the sources of information used by job seekers, to see what effect various sources of information might have on the discrimination process.

To study the process of discrimination on-the-job, that is differential rates of intrafirm promotions, Travis suggested looking at data on job performance, and attitudes toward work. In this way it may be possible to identify activities in which workers may engage which relate to discrimination. To extend this idea further, it would be desirable to identify both the explicit and implicit criteria on which employers base promotion decisions, and the extent to which workers of different kinds are aware of both these kinds of criteria. Here again, networks-- in this case networks of co-workers-- may be an important factor in differential rates of promotion.

A long-term perspective on discrimination is entailed in the focus on career mobility. Sullivan expressed this perspective in saying "besides indicating discrimination in levels of achievement, career mobility shows discrimination in the pace of achievement." This long-term perspective takes a more dynamic view of the process of discrimination.

Longitudinal data, such as that which the NLS could provide, become particularly important for studying discrimination over the long-term. Such data allow researchers to follow those discriminated against along the several dimensions suggested by Sullivan and others: earnings and work conditions, job security, job equity, job continuity, and career.

However, even good longitudinal designs based on the individual as the unit of analysis may be insufficient. Whether done consciously or not, discrimination is in large part the result of decisions made by those in positions to offer jobs, or give promotions. Thus a fuller understanding of discrimination will require studies based on data about these decision-makers. What are their characteristics, attitudes, motivations, and beliefs? Assuming they are disproportionately taken from among their undiscriminated-against majorities, to what extent do they use their positions and powers to maintain that situation? As increasing numbers of minority members attain such positions, will they use their powers to reduce the discrimination against their own minority? A comprehensive research program in discrimination would require coordinated research projects aimed at both populations--the discriminated against and the discriminators--using a longitudinal design. Conference participants recognized that while the NLS could become the vehicle for such a research program it would require a considerable shift in focus and redirection of resources. Consequently many questioned the appropriateness of using the NLS for this purpose. Nevertheless, they felt that with only some minor modifications much valuable data could be obtained, particularly on such issues as pace of achievement and job continuity.

Discrimination may be among the more evident examples of how labor market behavior is influenced by structural factors. Less evident, perhaps, are the ways in which labor market behavior, attitudes, and the psychological well-being of the worker are influenced by the social-psychological characteristics of the job requirements and work situation. Douvan introduced some possible relationships in this area in her discussion of the social-psychological potential of the NLS.

> We need to know something about the interpersonal setting of work. To what extent does the work allow and support interpersonal exchange? Surely this is a buffer against alienation and a source of job commitment for some people. It may predict job instability in many people for whom it is not a consciously salient aspect of work.

She went on to suggest that the consequences of alienation may be modified by one's sense of control over his situation: alienation might have a greater demoralizing effect on one who believes his situation is due to his own actions than if the blame can be placed on forces outside of one's control. This suggests that self-esteem may be another important variable which is influenced by the social-psychological characteristics of the job, a point which Bachman stressed in his comments.

That the social-psychological characteristics of the job have important consequences was stressed in Kohn's presentation describing his work on the relationships between occupational conditions and psychological functioning.

> Sherwin Rosen listed many aspects of occupational structure... such things as promotion opportunities, industrial work hazards, size of the establishment, employment stability as measured, for example, by turnover statistics for the establishment, racial composition of the workforce, average wage, hours of work, and extent of unionism. All of these are clearly pertinent to an understanding of occupational structure. For my particular interests, though, this list is not only incomplete, it leaves out precisely those dimensions of occupational structure that are most crucial, in that they have the greatest effects on individual psychological functioning.

Kohn and his associates have:

> indexed more than fifty separable dimensions of occupation, including such diverse aspects of work experience as the substantive complexity of work, the routinization or diversity of the flow of work, relationships with co-workers and with supervisors, pace of work and control thereof, physical and environmental conditions, job pressures and uncertainties, union membership and participation, bureaucratization, job protections, and fringe benefits. These indices provide the basis for a broad descriptive picture of the principal facets of occupations, as experienced by men in all types of industry and at all levels of the civilian economy.

Several of these appear to have a substantial impact on men's psychological functioning once education and other relevant occupational conditions are controlled. These may be grouped into four general areas which Kohn describes as position in the organizational structure, occupational self-direction, job pressures, and job uncertainties. Although Kohn's work has concentrated mainly on assessing the relationship between these structural characteristics and measures of psychological functioning, he suggested that "it is at least a tenable hypothesis that the same occupational conditions also affect labor market behavior--in particular, that they influence people's decisions to stay in their jobs or to seek other jobs."

In this regard, attachment to work may be an important intervening variable. Douvan stressed the importance of measuring attachment as it is known to vary considerably, especially in relation to such variables as job status, and sex. We might expect that the kinds of structural variables outlined by Kohn may go far in explaining some of this observed variation.

One of the basic aspects of labor force behavior and one which has been touched on indirectly in some of the previous discussion, is the process of finding jobs. Job-finding is perhaps most important for socioeconomic achievement--it is the process by which background, education, skills, and experience are translated into occupational status. Given the importance of entry level job for subsequent socioeconomic development, and the role of job changes in the process of intragenerational occupational mobility, an understanding of job-finding is central to the development of an understanding of socioeconomic achievement. This point was stressed by Granovetter:

> Job-finding is very important to study carefully because it is a crucial intervening variable in any theory of income and economic opportunity. All our current theories of income postulate some set of factors which lead to income: for human-capital theory it is an "investment plan;" for status attainment, it is background, education, and attitudes; for segmented labor-market theory, it is the particular labor market segment you "end up" in.
>
> But all these theories have a "black box" between their set of factors (the input) and income (the output). None of these explain how the connection is made between their favorite factors and income--how it happens that people acquire a job whose income corresponds to the causal factors cited.

Job-finding is a process in which the interaction between structural variables and individual level variables is particularly evident. Conference discussion of this issue centered around a memorandum on the job-search presented by McCall, who discussed several job search models and the changes and additions that can make the models more realistic. The core variables of the models are the cost of search, the distribution of potential job offers (in terms of wages), and the individual's reservation wage--the minimum wage the individual is willing to accept. The basic process is assumed to be one in which the individual engages in a series of job searches, each of which involves a cost and results in a job offer. The searcher is assumed to maximize the difference between the highest wage offer and the total cost of searching.

The variations which McCall indicated could be made include allowing the reservation wage to change over time (it is usually assumed to decline if one is unemployed), allowing for variable costs per search (for example, on-the-job search does not involve the cost of foregone wages), allowing the offer distribution to change over time (because of fluctuations in the economy) and allowing the inclusion of non-wage amenities in the value of a job offer.

Such models were felt by many to be too simple and too removed from reality, even granting the kinds of modifications discussed by McCall. Borus suggested that the costs of search include non-economic costs, such as health costs, or the costs of bothering friends or relatives. Moreover, repeated rejections might inflict a heavy psychological cost on the individual. It is possible that such non-economic costs have more influence on search behavior than the monetary costs of gathering information, making applications, etc. Borus also argued that the costs of search vary by level of occupation.

Although McCall did indicate that non-wage amenities could be taken into consideration in figuring the value of the job offer, he did not elaborate on this point. The skills and interests of the searcher limit the kinds of jobs searched for to a very narrow range. These factors must be taken into consideration in calculating the offer distribution. And such non-wage aspects of jobs as location, prestige, opportunity for advancement, working conditions, etc. may be as important as the offered wage.

Granovetter introduced a distinction between job-search and job-finding:

> Important as job-search may be, we ought to keep firmly in mind that it isn't synonymous with job-finding. This is true for two reasons. The first and more obvious one is that job-search may be unsuccessful; the second and more important is that many workers find new jobs without searching--jobs come to them. Theories of job-search are posed entirely from the supply side of the labor market; but there is also a demand side--employers seeking to fill vacancies--which is not well represented in these models. Even more complicated is the fact that workers may get information about jobs which comes neither from their search nor that of the employer.

With regard to making the distinction between search and finding, some of the participants, particularly economists, demurred, arguing in effect that one is always "searching"--it's just a matter of how much. Nevertheless, few disagreed with the basic points Granovetter raised in connection with his second reason--that employers may do the searching, and that information may come fortuitously.

In fact, as Granovetter argued, who does the searching and how it is done is highly structured. He indicated that his own research had shown that persons who are older, have higher incomes, or occupy certain kinds of jobs are more likely to have obtained their jobs without search. Hills pointed to early work on job search which posits that employers will bear an increasing portion of the cost of search as the position that they need to fill becomes increasingly specialized. This hypothesis is consistent with the kind of relationships found by Granovetter. Yet one suspects that these kinds of relationships only scratch the surface of the structure that is to be found in the labor market with regard to job-finding and recruitment.

The other point--that information may come fortuitously--is related and equally important. Granovetter argues:

> There is no simple way to measure the cost of acquiring a unit of information, in the way we can and do measure the cost of producing some commodity. The point is that social structure interferes with rational job-search models, because job-search is closely embedded in social relationships, and information is a commodity which comes automatically as a byproduct of all sorts of social and business interactions--in ways difficult to predict in the economic frame of reference.

To a certain extent people can and some do manipulate their social and business relationships so as to maximize the possibility of obtaining job information. The same social mechanisms can also serve to disseminate information about the individual to prospective employers. In view of the frequency with which some kinds of jobs are filled by employer-initiated searches, the latter direction of information flow may be as important for the individual as the former. In any event, little is known about how the structure of social relationships facilitates and mediates the flow of information about jobs. The NLS has the potential to help fill this gap. What kinds of relationships are most facilitating for each income or occupational level? Do the patterns of relationships which actually exist differ by race and sex, for example, and if so what impact does this have on job-mobility?

One set of social relationships which received particular attention at the conference in this regard is the family network. The most obvious way a family may facilitate job-finding is to bring sons or daughters into the family business. Less direct, yet certainly more common, is the situation where a parent or relative has direct access, through that person's own employment or friendship network, to information which will facilitate the job-search.

The manner in which relatives may be of help in job-finding is likely to vary considerably by social class and the type of job involved. Granovetter suggested that family networks may be more important for blue collar workers in that lower levels of specialization (in comparison with white collar jobs) increase the likelihood that children will seek the same kind of jobs as parents.[6] However, Ryder pointed out that white collar parents are likely to have wider contacts and so be in a better position to assist their children in finding jobs in occupations other than their own.

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[6] See Mark Granovetter, Getting a Job: A Study of Contacts and Careers (Cambridge: Harvard University Press, 1974), pp. 25-39.

An assessment of the relative roles of kinship, friendship, and other social networks in the process of job-finding is needed. If these networks are indeed important avenues to job attainment, their consequences will extend to other areas as well. To what extent, for example, do networks perpetuate status inheritance, or strengthen discrimination? Or can one consciously cultivate and make use of networks to overcome barriers to mobility?

Methodological Issues

While much of the conference was devoted to substantive issues, attention was also given to questions of methodology and design. As with the substantive issues, the discussions of methodology and design were focused on the NLS, yet the issues raised and the conclusions reached have equal bearing on much of the research being done in the area of socioeconomic life cycles.

Significant changes in study design have been made for the new youth cohorts. These include adding questions about participation in youth job-training programs, collecting supplemental data by matching to program records on respondents who have participated in such programs, and excluding from the panel those over the age of 21 (rather than 24 as in the previous youth panels, or 25, which would be required to cover young people not covered in existing panels). The conferees were nearly unanimous in perceiving these changes as motivated by an intention to use the NLS as a vehicle for the evaluation of these training programs. They presented strong arguments both for the impossibility of evaluating programs under the proposed design, and for the danger of drawing evaluative conclusions from data produced by this design.

Rigorous evaluation requires some form of experimental design. Three features must be incorporated in some form: the random assignment of subjects to experimental and control groups; the measurement of the dependent variables at two points in time, with the application of the treatment in between; and the control of extraneous variables which might also affect the dependent variables. With the exception of the longitudinal aspect of the NLS, none of these features is included in the design. The strict application of all these features is, admittedly, difficult to achieve in social research, and one must often settle for an approximation of a desired feature. Even this possibility, however, is lacking in the NLS design.

There is also a more practical difficulty. Executing the design requires that respondents be able to provide information which is detailed and accurate enough to allow the precise identification of the programs in which they participated. This goal, it was felt, may not be achieved in a high proportion of cases. Respondents may not realize that programs in which they participated were training programs; they may forget, especially if their participation was sporadic; they may be unable to provide enough information to identify the particular program; they might be motivated not to mention programs in which they had participated without success. Enough doubts about the feasibility of the procedure were raised to indicate that careful pretesting is required before full commitment to this approach is made.

Given that the NLS design is not an evaluation design, the danger exists that users of the data may nevertheless be tempted to make evaluative judgments from the data, precisely because the study will gather a lot of program data. Although such judgments are likely to be carefully described as "preliminary," "partial," or "the best evidence to date," they can, for that very reason, be quite wrong. Poor or even harmful policy may result when these "preliminary" conclusions become part of a policy-making process.

In view of these considerations, most participants felt the collection of program data under this design to be a poor use of resources which could be better utilized to expand the age range of the cohorts and to draw a national sample of more adequate size.

The NLS is and will continue to be a longitudinal study. Herein lies its chief strength, especially for the study of the socioeconomic life cycle. Discussion on this topic was stimulated by the recognition that there has been a disappointingly small amount of truly longitudinal analysis based on the NLS data.

Nevertheless, the advantages of the longitudinal design of the NLS did clearly emerge from the several discussions. Lazear identified four advantages of longitudinal designs in the study of socioeconomic achievement:

1. It allows one to hold ability constant when studying achievement in later years.
2. It increases accuracy of response on work history.
3. It allows measurement of effects in which timing is important.
4. It separates aging effects from cohort effects, as long as more than one cohort is included.

This last point bears special emphasis. Life cycle research is oriented toward identifying and explaining various typical and atypical maturational patterns as they occur over the stages of the life cycle. To identify such patterns it is essential to distinguish them from those attributable to cohort differences. The advantage of a longitudinal design--indeed its chief advantage--is that it makes it possible to begin to sort out changes due to age differences from those due to cohort differences.

In this regard a third source of variation--period effects--must also be taken into consideration. Its effects were illustrated by Bachman:

> The Douvan paper mentioned life-cycle analyses and generational variations, and the desirability of disentangling them. I'd like to add secular trends as another thing to be sorted out. For example, the Youth in Transition study found a big drop in trust in government as the panel of young men went from age 15 to age 23; however, that drop matched almost perfectly the drop in national cross-sectional surveys of public trust in government during that same interval (1966 through 1974). If we had been limited to our single cohort data, and if we had not known of the general drop in government trust, we might have mistaken this secular trend for some sort of maturational or life-stage trend occurring during late teens and early twenties.

Additions to or elaborations of the points made by Lazear emerged in other discussions at the conference. As already alluded to in the discussion of discrimination, there are some processes (such as mobility, and the transition to adulthood) which are defined in terms of events occurring over an extended period of time. A longitudinal design allows both more accurate measurement of these processes than can be obtained with a retrospective design, and the measurement of the timing of events which may be causes or consequences of these processes. To the extent that some processes are characterized by positive or negative feedback cycles, longitudinal designs aid in sorting through the problems of simultaneity which obscure these processes.

The use of longitudinal designs raises research issues of its own. Among these, and drawing a substantial amount of attention at the conference, is the tension which exists between the need to replicate previous questions and to add new content or revised questions. Many of the advantages of longitudinal data, discussed above, rest on the assumption that identical measures will be collected at several points in time. Such time series data are essential to mapping out the changes in states and characteristics of individuals as they make their way through the life cycle.

Stolzenberg responded as follows to disappointment expressed at the conference over the lack of more longitudinal analysis with the NLS:

> I think that one of the reasons why more truly longitudinal analyses have not been done is that the NLS data themselves are not truly longitudinal in certain key ways. Many important variables have been measured at only two interviews in these surveys. Further, the coding of certain variables has changed from year to year, making longitudinal analysis difficult. A third problem interfering with longitudinal research on these data is that certain information was gathered only from odd subsamples.

In other words, some important items need to be replicated more often. Bachman expressed the importance of replication in another way:

> It is critically important to have repeated measures in a longitudinal design (even though some longitudinal designs do not do so). Particularly in the case of the social psychological measures, we have the opportunity to collect data prior to major events (such as leaving school, getting a job, etc.) and thus control for early levels of the variable while trying to assess the impact of social experiences or environments on later levels of the variable. Needless to say, that is not possible unless the dimension is measured early and repeatedly.

Bachman also supported the need for repeated measures when he pointed out their role in helping to sort out secular trends from cohort or age effects.

Not only is replication important, but it must be done carefully and exactly. Ryder drew upon some evidence from the National Fertility Studies to indicate that even very minor changes in the wording of a question can induce significant changes in the distribution of responses, which may lead one to assume falsely that change has taken place.

Although no one disagreed with the principle of replication, some argued that there are circumstances where it may be inappropriate. Two primary justifications for change were given: to make improvements (wording changes) in specific questions or series which are not working well, but where the content they cover is wanted; and to add important new content, where such additions require the deletion of an equal amount of old material.

Although no consensus emerged which would offer specific guidelines for NLS researchers as to when an item should be revised and when it should be retained unchanged, many participants did call for much greater attention to measurement problems. It was felt that it is particularly important in a longitudinal study to have measures of the validity and reliability of questionnaire items, even if this requires collection of additional data for comparison purposes. Only with such objective measures can sound decisions be made as to whether an item is of adequate quality, or needs to be revised.

On the question of new content, perhaps the strongest expression in favor of change was made by Shore when he said we should "drop items unless there are really compelling reasons for retaining them. Comparability is a luxury we can ill afford when the explanatory power of so many other variables remains untested." This would seem to underscore the need to measure the validity of items in the broadest sense of the word: they should be part of an explanatory or predictive model which is supported by the data if they are to be retained.

To take full advantage of longitudinal designs to disentangle age, cohort, and trend effects, it is necessary to replicate questions across cohorts as well as over time. Intracohort replication (over time) provides the longitudinal data base for the observation of changes due to maturation. But intercohort replication is needed to allow for comparisons between cohorts to sort out the relative contributions to change of age, cohort and secular trends.

For studies such as the NLS which are based on several quite different cohorts, this means that each cohort should get the same set of core questions. Lack of sufficient replication of this sort was seen as one of the problems with the NLS, as Stolzenberg remarked:

> I think it would be a good idea if survey instruments for the different cohorts were made as similar as possible whenever appropriate. In their paper, Bielby, Hawley, and Bills complain that not enough studies have been done which investigate more than one cohort. I believe that one reason for this is that the questionnaires for the various cohorts

> are sufficiently dissimilar that it is frequently not possible to do parallel analyses on two or more of the panels.

For other studies, where a much broader age range is involved, intercohort replication simply means that all respondents should be given the same core questionnaire, whatever additional age-specific questions may be added.

When longitudinal data are being used to measure and disentangle age and cohort effects, extreme care must be taken to insure that comparable populations are being covered in the different cohorts in the sample. In this regard conference participants identified a weakness in the design of the NLS. The initial youth cohorts did not include institutional or noncivilian persons in the populations from which the samples were drawn. This introduces some non-comparability into comparisons across ages, and leads to biased samples over time, especially with regard to the military population. At the time of initial sampling, a large proportion of young men (age 18-22) were in the armed forces relative to men of other ages. Consequently, in terms of birth cohorts the men in this age range are underrepresented, and those defined out of the sample (i.e., in the armed forces at the time the sample was drawn) are certain to differ in important ways from those included. Furthermore, as the cohorts age, the original sample of men in this age range will become less representative even of the civilian population, as men in the military at the time of sampling return to civilian life. Thus intercohort differences may be due in part to differences in population coverage, and intracohort differences may not reflect the true changes to be found in the entire cohort.

The notion of intercohort replication should also be extended by adding sex to the cohort definition. One of the critiques of the NLS questionnaires has been that versions for males and females have been sufficiently different to make many important and interesting male-female comparisons impossible. The continually increasing rate of female participation in the labor force and the increasing numbers of female-headed families make the collection of similar data from males and females a vital objective. Only in this way can the trends be faithfully mapped, so that one can tell where convergence is taking place, where differences persist, and why. Although these points were made by conference participants in relation to the NLS, they apply equally well to much of the research in the area of socioeconomic development.

It is likely, of course, that explanations of male and of female labor force participation may differ. Consequently, it is necessary initially to conduct separate analyses by sex to identify these differences. Nevertheless, those differences which do exist must be discovered using a common analytic framework, and this requires substantially similar lines of questionning for both sexes.

One further methodological issue was dealt with at length in a paper presented by Singer. In the process of intracohort replication, complete histories of relevant events should be obtained. For socioeconomic research this will in most cases include at least complete occupation, education, residential, and family histories. Of course, periods of data collection need not be so frequent as to capture each event as it occurs. Much of the data can be obtained retrospectively. Also, what is considered "complete" may vary according to one's purposes and needs. In many contexts, for example, an occupational history may be confined to gathering information only about the main jobs held for some minimum period of time. Histories of this sort are required, Singer argues, to allow the building of explanatory models based on the minimum number of assumptions and the maximum amount of empirical evidence. In particular, with such data it is possible to look for regularities in time-dependent patterns of behavior, and to seek to explain such patterns.

Complete histories have a further advantage where age-specific statistics are concerned. Since age-specific data can be generated for each prior age for each individual in the sample, it is possible to aggregate such data and generate age-specific rates or ratios using the entire sample for each age. Consequently, much more efficient use is made of the data.

Summary and Suggestions

In the process of evaluating the NLS research record, and providing guidance for the continuation of this longitudinal labor market study, the October SSRC conference on the NLS produced a wealth of research ideas which could be addressed by a study such as the NLS. We have attempted here to present the major themes which emerged during the conference. Although the discussions were lively and disagreement not uncommon, some broad areas of general consensus emerged which have been developed above.

The number of research ideas generated far exceeds the capacity of any one study to incorporate them all, even a large longitudinal one such as the NLS. The conference did not produce a sense of the priorities which should be given to these ideas. With respect to the NLS, this task remains, and will be done in the hammering out of the questionnaires. Nevertheless, it is possible to distill from the conference a set of suggestions to which the planners of the NLS should give serious consideration, recognizing that they cannot do it all.

Work and Family

1. The life cycle stage corresponding to the transition to adulthood is characterized, for most, by many significant events (such as marriage, completion of education, entry into the labor force, etc.). The choices by which individuals influence the patterning of these events are of importance to the individual, particularly in terms of long-run consequences for labor market participation, and of societal importance, particularly for the quality of resource allocation in labor markets. Data are needed not only to describe these patterns of events, but also to aid in understanding the choices and causal influences which underlie them.

2. Later stages in the life cycle may also be expected to relate strongly to labor force participation, especially the transitions to parenthood, to post-parenthood, and to post-married, and the approach of retirement age. The adjustments that are made at these stages, and how and why they have been changing over time need further study.

3. The relative contributions of several social changes to the increased rates of female labor force participation need to be sorted out. These changes include: changes in sex role norms; improvements in birth control technology; changes in use of time, especially that revolving around homemaking tasks; the increase in divorce rates and in female-headed families.

4. Greater understanding is needed of the dynamics of dual-earner families. Attention should be especially devoted to the consequences for the career mobility of each, how decisions are made about whose career takes precedence, the social forces influencing such decisions, and the long-run labor-force participation patterns of such families.

Labor Force Socialization

1. The development of successive generations of workers takes place in part through the socialization of young people before entry into the labor market. A person's relative advantage or disadvantage in the labor market may become well established during this period. More attention should be given to understanding the role of families in the socialization process. What labor market attitudes, knowledge, and skills do they impart to their children and with what effect?

2. The educational system is also a chief agent of labor force socialization. Neglected areas of study include the socializing roles played by the growing diversity of kinds of formal education--vocational and trade schools, continuing education, etc.--and by less formal kinds of educational experiences, such as participation in voluntary organizations.

3. The work experience itself acts as a further socializing influence. How are knowledge, attitudes, and skills relating to work maintained, strengthened, or changed as a result of work experience, and how does this differ by sex and race? To what extent can work experience overcome initial labor force disadvantage? Attention should also be given to the impact of these socializing influences on other areas of life, especially the family.

Structural or Demand Side Variables

1. Labor force participation of all workers is greatly influenced by the structure of discrimination in the labor market. The potential of the NLS for studying discrimination is limited unless the design is changed to include collection of data from employers. Yet even with the current design there is the potential for developing better conceptual measures of discrimination, and for describing discrimination as a long-run process influencing both pace and level of achievement.

2. Job-finding is the activity through which occupational achievement and mobility take place. It may be viewed as a communication and decision-making process through which available jobs and individuals are matched. The

structure of this process is not well understood. The NLS holds the potential to gather valuable data on this process from the individual's point of view though its potential from the other side is again limited by its design.

3. Social networks--of friends, relatives, or coworkers--may provide one of the chief mechanisms through which individuals relate to the labor market. Such networks may be particularly helpful for job finding, but may also serve to cushion the impact of labor crises such as unemployment, and serve a socializing role. The NLS could provide data on the structures of such networks and the functions which they serve in mediating the relation between the individual and the labor market.

Methodological Issues

1. The full impact of changing cohort size on labor market experience and on the timing and sequence of related life events cannot be examined with the existing study design, which omits persons 22 to 25 years old in 1978. These people, born around the time when births in the United States first exceeded 4 million annually, may be thought of as comprising the leading edge of the baby boom. Their omission from the study should be rectified in order to permit the testing and elaboration of current theory about the effects of cohort size on unemployment, income, and career advancement, and the detailed analysis of the transition to adulthood and entry into the labor market.

2. Given the problems inherent in the collection of matched program data, and lack of an experimental design, the NLS is not a suitable vehicle for the evaluation of training programs. Features of the study design, such as the collection of program data, which reflect primarily an evaluative purpose, require resources that would be better applied to a more adequate national sample and a broadening of the age range of the youth cohorts.

3. The cohorts should be defined in terms of birth cohorts, and all youth of the appropriate age--regardless of residential or military service status--should be in the universe. Otherwise distortions in intercohort comparisons arise because of the relatively large proportions in group quarters or the military during certain ages.

4. Complete histories of relevant events--especially complete occupation histories--should be obtained to provide more complete data for the development of models of changes in these variables.

5. Ongoing collection and analysis of methodological data should be instituted and maintained. Chief among the goals of this methodological research should be the determination of the validity and reliability of measures which are being replicated, so as to make sound judgments as to which measures are working well enough to be kept and which should be dropped in favor of measures which show more promise.

6. The NLS should institute a program of ancillary surveys to perfect and test new content before it is incorporated in the NLS. This procedure will have both conservative and innovative consequences, both desirable. By providing for developmental and testing work before the demands for new data are reflected in the main questionnaire, it will help to insure that the demands for new data do not swamp the requirements of replication and to insure that only well-measured variables have a place in the main surveys. It will also offer an opportunity to develop innovative new areas of inquiry such as those suggested by Morgan, in a setting which provides an opportunity for reconceptualization and restructuring, relatively free of the imperatives imposed by the deadlines for fielding the next wave of surveys.

III. DOCUMENTATION

Correspondence

Copies of key items of correspondence documenting the development, execution, and results of the conference are provided in the following pages. The first few letters pertain to the initial development of the conference, and include the letter from Howard Rosen (March 29) in which he suggested that SSRC submit a conference proposal, a memo from Robert Parke (April 20) outlining the objectives of the May 9 planning meeting, and a letter from Frank Mott of CHRR (April 25) expressing some ideas on reviewing the NLS.

The next few items document instructions given to conference participants. The letter to David Featherman (July 15) illustrates the guidelines given to authors of papers or memoranda; the letter to Nancy Karweit (July 26) illustrates the guidelines given to discussants; and the memo of October 6 provides participation guidelines for each of the tasks.

Although examples are not included here, a great deal of correspondence has been directly stimulated by the conference. Many of the participants are now in direct correspondence with the NLS project staff at CHRR providing further suggestions.

Social Science Research Council
CENTER FOR COORDINATION OF RESEARCH ON SOCIAL INDICATORS
1755 Massachusetts Avenue, N.W., Washington, D. C. 20036

Robert Parke
Director
(202) 667-8884

April 20, 1977

To: Participants in the May 9 meeting to plan the SSRC conference on the National Longitudinal (Parnes) Surveys

From: Robert Parke

Thank you for agreeing to participate in the May 9 meeting to plan the conference on the National Longitudinal Surveys (NLS). We will meet at the headquarters of the Social Science Research Council, 605 Third Avenue, New York, NY 10016. The meeting will start at 9:30 a.m. and adjourn by 4:00 p.m. Guaranteed hotel reservations have been made for out-of-town participants for the night of Sunday, May 8, at the Sheraton-Russell Hotel, Park Avenue at 37th Street, a few blocks walk from the Council. The Council will reimburse your travel and subsistence expenses.

The Council has received a letter from the Employment and Training Administration of the Department of Labor (Rosen to Parke, March 29, enclosed) suggesting that we submit a proposal for a conference to provide social science commentary on new directions for the NLS. We plan to respond to this suggestion and to hold the conference late next fall, to include approximately 20 participants. Following the conference, and informed by it, a small working group will prepare specific recommendations affecting the surveys.

The purpose of the May 9 meeting is to plan the conference, that is, to specify the topics which must be dealt with there and to suggest the people who should be asked to prepare papers, memoranda, or other commentary on those topics. Hence the questions we must answer on May 9 are:

1. What are the important substantive questions concerning the life cycle and work that require longitudinal data?

2. Who is best qualified to speak to these questions, providing comment upon:

    a. The types of data required to answer these questions, and the extent to which such data exist in the NLS or elsewhere.
    b. The analytical strategies which may be brought to bear on these questions.
    c. The implications of answers to the foregoing for the plan of the NLS, its content, sample design, and other attributes.

The NLS is described in the enclosed NLS Handbook (the enumeration history for each of the panels is given on Handbook page 2). Plans for the future

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of the survey are summarized in a February 18 letter (Rosen to Parke, enclosed). Note here the intention to introduce new panels of young people and to drop the older panels. The commitment to the new panels, I am assured, is firm; it was strongly endorsed by participants in a meeting held on October 28, 1976 (summary enclosed). Mr. Rosen will be able to add any available further information about the future of the older panels when we meet. I also enclose a paper by Herbert Parnes summarizing much of the NLS-based research, the most recent personal interview schedules for all four panels, and a recent telephone interview schedule for the young women.

Robert Hauser and Eleanor Sheldon will co-chair the planning meeting. If you have any questions, please let me know.

Robert Parke

Enclosures

To: Robert Hauser, U. of Wisconsin
Leslie Kish, U. of Michigan
Herbert Parnes, Ohio State U.
Matilda White Riley, Bowdoin College
Howard Rosen, Dept. of Labor
Burton Singer, Columbia U.
Seymour Spilerman, U. of Wisconsin
Larry Suter, Bureau of the Census
Robert Willis, National Bureau of
Economic Research, Palo Alto
Harry Travis, Dept.of H.E.W.

SSRC: Eleanor Bernert Sheldon
Ronald Abeles
Peter Read

U.S. DEPARTMENT OF LABOR
EMPLOYMENT AND TRAINING ADMINISTRATION
WASHINGTON, D.C. 20213

MAR 29 1977

Mr. Robert Parke
Social Science Research Council
1755 Massachusetts Avenue, N. W.
Washington, D. C. 20036

Dear Mr. Parke:

Pursuant to our recent telephone conversations, I should like to suggest that the Social Science Research Council (SSRC) submit to the Employment and Training Administration a proposal to fund a conference on the National Longitudinal Surveys. The purpose of the conference would be to bring together a variety of social scientists to consider new directions that might be taken as we inaugurate two additional panels of male and female youth who will be surveyed over the next 10 years. In addition, following the conference and based on its discussions, SSRC would hold a meeting of a small working group to make specific recommendations on the surveys' redesign.

As you know, the National Longitudinal Surveys have been in progress since 1966 under the general direction of Dr. Herbert Parnes at the Ohio State University. Dr. Parnes has expressed the intention of soliciting the suggestions of a broad spectrum of social scientists in planning the content of the new series of surveys. He was very enthusiastic about the potential interest of the SSRC in sponsoring a conference that would facilitate this kind of input, and expressed the hope that he would be included among the participants.

We have been operating on the assumption that the new samples will be interviewed for the first time in 1979. If this goal is to be achieved, the proposed conference would have to be held by Fall, and, therefore, work started on it very soon.

I shall be looking forward to seeing your proposal.

Sincerely,

Howard Rosen

HOWARD ROSEN
Director, Office of
Research and Development

THE OHIO STATE UNIVERSITY

April 25, 1977

Dr. Robert Parke
Social Science Research Council
1755 Massachusetts Avenue
Washington, D.C. 20036

Dear Bob:

It was a pleasure talking with you at the P.A.A. meetings. The following represent a few thoughts related to our discussion of the other evening.

The overriding point, of course, is that there certainly is a need for someone to sit back and evaluate what we have learned (both positive and negative) about longitudinal (panel) research. In the most general sense, what has "worked" and what hasn't?

(1) The basic premise behind panel research is that there are certain kinds of research (in our case, relating to labor force "dynamics") where longitudinal results are superior to the traditional approach of making longitudinal inferences from cross-sectional data. I believe longitudinal data is indeed superior in some instances. However, clarification of the areas of research where this is true would be useful.

(2) As you know, our survey questions are pretty much independent of each other from year to year. That is, when asking, for example, employment status on a given survey date, we do not build directly on the preceding years' responses. This has the advantage of minimizing certain kinds of response bias. On the other hand, it maximizes other data problems, such as the cumulative effect of random errors. For example, if a particular item in the Young Woman's interview series has been asked eight times between 1968 and 1977 with (let's say) a five percent error rate (interviewer error, coding error--whatever) each time, any examination of survey to survey patterns over nine years will have considerable random "noise". In my opinion, the relative advantages and disadvantages of the two approaches have never really been evaluated.

(3) There are a number of areas where it is not entirely clear what the optimum questions to be asked are. These include (a) items measuring occupational change from year to year (b) items probing into patterns of job continuity (witness the woman who interrupts a job but returns to the same employer, to the same or different detailed occupation) (c) items probing into the components of unearned

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income for retirees, and the poor, and (d) differentiation between pre- and post-tax earnings. An interview series such as the NLS must of necessity obtain at least some information about many different facets of life. As such, it is of the utmost importance to maximize the quality of information obtained with a minimum number of questions. We have tried hard to do this, but in some instances (e.g., occupation, income) there may be alternatives preferable to what we have been doing.

(4) Given the increasing problems due to confidentiality constraints, it might be of value if further thought could be given to better ways to maximize the public dissemination of a considerable part of our data set which is currently not available to either the NLS staff at Ohio State or the public at large. For example, the NLS is potentially a great data resource for mobility research, but because of Census confidentiality constraints, this potential will never be realized. We need more methodological tools which would permit better dissemination of this information while at the same time maintaining the anonymity of individuals. From a personal perspective, I also wonder how much thought has gone into the Federal confidentiality rules which often appear ad hoc and subject to the whims of specific individuals.

(5) As you know, our surveys are in some instances annual, and in some instances biannual reflecting cost constraints of the funding agency as well as manpower constraints of the Bureau of the Census. It seems to me that perhaps more thought could be given to the question of what represents "optimal" spacing between surveys of the kind in which we are engaged. Problems of recall obviously enter into this kind of thinking. Attrition questions also enter into the thinking as interviews close together may minimize sample loss due to mobility but maximize loss due to more quickly reaching the "annoyance threshold" of at least some respondents.

(6) One final point which I feel might be useful to consider with new cohorts is that of having questionnaire spinoffs for subsets of particular interest (e.g., welfare respondents, veterans, health problem groups) with more detailed questionnaires probing into specific areas in greater detail. This would not only provide useful specific policy-oriented information, but could perhaps shorten the main body of the questionnaire.

I would like to conclude by emphasizing two points. First, I believe a comprehensive methodological study of the type mentioned above would only be of real value if it is done thoroughly. If a competent survey research methodologist who also has substantive interests in the social sciences could devote a substantial period of time to such a study, it could be of inestimable value. If it is just a sideline for an already overloaded researcher to fit in along with all his other work, I don't believe it would be overly useful.

Regarding committees or groups to help formulate directions for the future, I believe the best approach is to gain inputs from those researchers whose research approach has been interdisciplinary (e.g., Oppenheimer, Easterlin, Eva Mueller, Deborah Freedman). This minimizes the risks of leaving out of the interview schedules single questions, or series of questions, which form the building blocks of major theoretical perspectives in labor force analysis. While I am aware of the difficulty there is in convincing people of this caliber to become involved in these review processes, I believe it is imperative to do so, given the magnitude (in terms of manpower and money) of the survey we are discussing and its current and prospective importance to the social science research community.

Sincerely,

Frank L. Mott
Associate Project Director
National Longitudinal Surveys

FLM:jb

Social Science Research Council
CENTER FOR COORDINATION OF RESEARCH ON SOCIAL INDICATORS
1755 Massachusetts Avenue, N.W., Washington, D. C. 20036

Robert Parke
Director

(202) 667-8884

July 15, 1977

Dr. David Featherman
Department of Sociology
University of Wisconsin
1180 Observatory Drive
Madison, WI 53706

Dear Dave:

Thank you for agreeing to prepare a memorandum for the SSRC conference on the National Longitudinal (Parnes) Surveys being held on October 14-16, 1977 at the Embassy Row Hotel in Washington, D.C.

The NLS has been and will continue to be a major resource for the investigation of the labor force behavior of cohorts of Americans and of a broad range of social and economic characteristics, attitudes, and features of the socioeconomic environment related to labor force behavior. The Department of Labor has recently decided to fund continued observation of the existing cohorts (males 14 to 24 and 45 to 59 years old in 1966 and females 14 to 24 and 30 to 44 in 1966) and to fund surveys of two new youth panels (males and females 16 to 26 in 1979). The conference will provide a major opportunity for researchers in the social sciences to influence the contents of the surveys, particularly the surveys of the two new youth panels, and to frame research issues and analytical strategies to guide research uses of data from all six panels. It will constitute an important basis for planning the content and utilization of the NLS for many years. Among the participants will be senior staff members of the Center for Human Resource Research, which plans and runs the surveys and conducts extensive analyses of them, the Employment and Training Administration of the Department of Labor, which funds the surveys and much of the research based on them, and the Bureau of the Census which conducts the field work on the existing cohorts. The conference is being conducted under the auspices of the Advisory Committee on Social Indicators of the Social Science Research Council and is funded by the Employment and Training Administration of the Department of Labor.

The conference will begin on October 14 with dinner and plenary addresses on research issues in labor supply in the next decade and on analytical strategies for the use of panel data. On Saturday morning we will hear a presentation based on a comprehensive survey of NLS-based research. The balance of the program will be devoted to memoranda presenting suggestions for survey content and for analysis of survey materials in particular substantive areas, and further commentary on analytical strategies for NLS-based research and on research issues that may emerge in the future. Some of the time we will meet in plenary session, some of the time in concurrent sessions structured by memoranda dealing with the substantive research areas.

Ample time for commentary by discussants and other participants will be provided. The conference will conclude on Sunday afternoon, October 16, with a plenary session featuring recapitulations and reconsiderations by memoranda authors and discussants. The preliminary conference program is enclosed.

Presenters of memoranda are asked to familiarize themselves with the relevant content of the NLS questionnaires and, insofar as possible, of NLS-based research, and to focus their memoranda on (1) suggestions for additions to, subtractions from, and modification of the contents of the surveys and (2) priorities for the analysis of existing and future data. They are asked to comment on the need for introducing suggested new content into a panel survey such as the NLS, as against putting it on a single-time survey or a series of cross-sectional surveys. Presenters should include references to survey questions or batteries of questions which they believe to be especially worthy. They should also cite thoughtful expressions of the need for information they recommend for inclusion in the surveys. We will, within a few days, send you copies of the most recent interview schedules for the four existing panels and a recent telephone interview schedule for the young women, and a copy of the NLS Handbook, which describes the surveys and includes a bibliography of NLS-based research.

We are expecting from you a ten-page memorandum on the Effects of Schooling and the Transition from School to Work, following the above guidelines and serving the objectives of the conference. You should assume audience familiarity with the NLS and move quickly to the operational implications of the issues you raise. One copy (original typescript) of the memorandum is needed by September 25. An honorarium of $250 will be provided. The Social Science Research Council will reserve a hotel room for you and reimburse the costs of your travel and subsistence.

Your active participation for the duration of the conference is expected if the conference objectives are to be achieved. No conference activities are scheduled for Saturday evening, October 15.

I regret that the necessity of keeping the conference to workshop size makes it impossible to extend invitations to your research associates. I hope that you will solicit and acknowledge their contributions. If either I or my staff can be of assistance to you, please call on us. I welcome your participation and look forward to a stimulating and productive conference.

Sincerely yours,

Robert Parke

Note: While not wishing to intrude on vacations, I do need to receive your acknowledgment of this letter. I also need to know your address and telephone number this summer and fall since I may find it necessary to send additional sets of materials on the NLS and additional conference materials.

Enclosure

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Robert Parke
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July 26, 1977

Dr. Nancy Karweit
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Dear Dr. Karweit:

Thank you for agreeing to serve as a discussant at the SSRC conference on the National Longitudinal (Parnes) Surveys being held on October 14-16, 1977 at the Embassy Row Hotel in Washington, D.C.

The NLS has been and will continue to be a major resource for the investigation of the labor force behavior of cohorts of Americans and of a broad range of social and economic environment related to labor force behavior. The Department of Labor has recently decided to fund continued observation of the existing cohorts (males 14 to 24 and 45 to 59 years old in 1966 and females 14 to 24 and 30 to 44 in 1966) and to fund surveys of two new youth panels (males and females 16 to 26 in 1979). The conference will provide a major opportunity for researchers in the social sciences to influence the contents of the surveys, particularly the surveys of the two new youth panels, and to frame research issues and analytical strategies to guide research uses of data from all six panels. It will constitute an important basis for planning the content and utilization of the NLS for many years. Among the participants will be senior staff members of the Center for Human Resource Research, which plans and runs the surveys and conducts extensive analyses of them, the Employment and Training Administration of the Department of Labor, which funds the surveys and much of the research based on them, and the Bureau of the Census which conducts the field work on the existing cohorts. The conference is being conducted under the auspices of the Advisory and Planning Committee on Social Indicators of the Social Science Research Council and is funded by the Employment and Training Administration of the Department of Labor.

The conference will begin on Friday evening, October 14, with dinner and plenary addresses on research issues in labor supply in the next decade and on analytical strategies for the use of panel data. On Saturday morning we will hear a presentation based on a comprehensive survey of NLS-based research. The balance of the program will be devoted to memoranda presenting suggestions for survey content and for analysis of survey materials in particular substantive areas, and to further commentary on analytical strategies for NLS-based research and on research issues that may emerge in the future. Some of the time we will meet in plenary session, some of the time in concurrent sessions structured by memoranda dealing with the substantive research areas. The conference will conclude on Sunday afternoon, October 16, with a plenary session featuring recapitulations and reconsiderations by memoranda authors and discussants. The preliminary conference program is enclosed.

Presenters of memoranda have been asked to familiarize themselves with the relevant content of the NLS questionnaires and, insofar as possible, of NLS-based research, and to focus their memoranda on (1) suggestions for additions to, subtractions from, and modification of the contents of the surveys and (2) priorities for the analysis of existing and future data. We have asked that the memoranda comment on the need for introducing suggested new content into a panel survey such as the NLS, as against putting it on a single-time survey or a series of cross-sectional surveys. Presenters of memoranda have also been asked to include references to questions or batteries of questions which they believe to be especially worthy, and to cite thoughtful expressions of the need for information they recommend for inclusion in the surveys. Discussants are asked to familiarize themselves with the content of the surveys, react to the memorandum, and present additional suggestions.

We are expecting you to discuss a memorandum on Episodes and Events as Units of Analysis in Longitudinal Surveys by Natalie Rogoff Ramsøy. Dr. Ramsøy's focus will be on analytical strategies rather than on the substance of the surveys, so some of the above guidelines will not apply to her presentation, and you should feel free to adapt your role accordingly. Please limit your comments to 15 minutes. I have just received a letter from Dr. Ramsøy expressing her pleasure that you will be a discussant of her presentation. It seems that her thinking on this topic owes a good deal to your writing. Presenters of memoranda have been asked to submit their memoranda in time to give discussants sufficient opportunity to prepare their comments. We will be diligent in our attempts to secure compliance with this request, and will send you the memorandum you are to discuss as soon as we receive it.

We will, within a few days, send you copies of the most recent interview schedules for the four existing panels and a recent telephone interview schedule for the young women, and a copy of the NLS Handbook, which describes the surveys.

Your active participation for the duration of the conference is expected if the conference objectives are to be achieved. No conference activities are scheduled for Saturday evening, October 15. We cannot provide honoraria for discussants. However, the Social Science Research Council will reserve a hotel room for you and reimburse the costs of your travel and subsistence.

I regret that the necessity of keeping the conference to workshop size makes it impossible to extend invitations to your research associates. I hope that you will solicit and acknowledge their contributions. If either I or my staff can be of assistance to you, please call on us. I welcome your participation and look forward to a stimulating and productive conference.

Sincerely yours,

Robert Parke

Robert Parke

Enclosure

Note: While not wishing to intrude on vacations, I do need to receive your acknowledgment of this letter. I also need to know your address and telephone number this fall since I may find it necessary to send additional sets of materials on the NLS and additional conference materials.

Social Science Research Council
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Robert Parke
Director
(202) 667-8884

October 6, 1977

To: Participants in the SSRC Conference on the National Longitudinal Surveys

From: Robert Parke

Subject: Guidelines for Participants

To facilitate the smooth and productive flow of the conference, I have prepared brief general descriptions of each of the roles needed for each session. Whenever you are not assigned a specific role for a given session, you are urged to contribute through your active participation in the open discussion.

Chair

The job of the chair is to see that the session progresses smoothly, productively, and according to schedule. The presenters and discussants should be kept within their allotted times (15-20 minutes for presenters; 15 minutes for each scheduled discussant). In chairing the open discussion which follows the formal remarks, it is perhaps best to first allow the presenter of the paper to respond to the comments of the discussants. Following this discussion should be encouraged from all those attending the session.

The chair should provide guidance for this discussion if it strays from the topic or if too much time seems to be spent on minor issues at the expense of more critical ones.

Presenter

The job of the presenter is to provide an oral summary of his/her paper or memorandum, around which the session is organized. These summaries, which should be limited to 15-20 minutes and may be read or given from notes, should stress the major findings, arguments, conclusions, and suggestions contained in the paper or memorandum.

Following the formal comments by the discussants, the presenter should participate in the open discussion.

In addition, the eight presenters of memorandums in the concurrent sessions (Saturday afternoon and Sunday morning) will be expected, during Sunday's plenary session, to present a five minute summary of the principal points from their session.

Discussant

The discussant's job is to react to the paper or memorandum which has been presented, and to present additional suggestions. The discussant should feel free to clarify, question, disagree with, or reinforce points made during the presentation, as well as to raise new issues which the discussant feels are relevant to the topic.

More

The formal remarks of the discussant should be limited to 15 minutes. Discussants are also expected to participate freely in the general discussion which follows the formal remarks.

If discussants have prepared written materials from which to make their comments, a copy of these materials would be most useful for the rapporteur and for the SSRC staff who will be preparing the conference report. If such materials are available, one copy should be given to James Peterson or Edna Lusher, of the SSRC staff. SSRC will produce a copy for the use of the rapporteur.

Rapporteur

SSRC is committed to preparing a report of the conference, a task which will be the responsibility of James L. Peterson of the SSRC staff. This report will reflect not only the papers and memoranda which will be presented but also the issues, arguments, and suggestions which will come out of the discussions. Indeed these discussions, along with the papers themselves, will provide the main substantive results of the conference. It is therefore essential to preserve the substance of these discussions, and this is the task of the rapporteur.

The job of the rapporteur is to distill, in written form, the essence of the discussion following the presentation of a paper or memorandum. These notes should capture the main themes, points, arguments, and conclusions of the discussion. Both areas of consensus and disagreement should be noted.

No notes need be taken on the paper or memorandum itself, as written copies have already been prepared, unless the presenter includes fresh material in the presentation. However, the formal presentations by the discussants, as well as the informal discussion following should be completely covered.

It is not essential to attribute remarks other than the formal remarks of the discussants, nor to preserve the chronological order of the discussion. Rather, the important objective is to discern and record the content of the discussion on the main issues which are raised.

The notes should reflect the discussion as objectively as possible, rather than present the rapporteur's own point of view. However, a rapporteur may and is indeed encouraged to add his/her own comments and interpretation to the end of the notes.

Notes should be submitted, in typewritten form if possible, no later than two weeks following the close of the conference (by October 30). If necessary, notes should be revised so they are in prose, rather than topical form, and are organized around the main themes of the discussion, rather than chronologically.

Conference Program

The conference program follows.

Social Science Research Council
CENTER FOR COORDINATION OF RESEARCH ON SOCIAL INDICATORS
1755 Massachusetts Avenue, N.W., Washington, D. C. 20036

Robert Parke
Director

(202) 667-8884

SSRC Conference on the National Longitudinal Surveys

Embassy Row Hotel, Continental Suite
Washington, D.C.

October 14-16, 1977

Conference Chairman:	Robert M. Hauser
Conference Staff:	Robert Parke James L. Peterson Edna Lusher

The conference begins on Friday, October 14, with

Registration and Social Hour	6:00 p.m.
Dinner	7:00 p.m.
Plenary Session	8:00 p.m.

Morning sessions begin at 8:45 a.m.

The conference ends on Sunday, October 16, at 4:00 p.m.

Detailed program on following pages...

Program October 10, 1977

Friday, October 14 **Evening**

6:00 Registration and Social Hour — Continental Room Foyer

7:00 Dinner — Continental Room B

8:00 Plenary Session — Continental Room A

Chairman : Eleanor Bernert Sheldon

Opening Remarks : Howard Rosen

Paper : Harold W. Watts and Felicity Skidmore: Labor Force Issues circa 1984

Paper : Burton Singer: Individual Histories as Units of Analysis in Longitudinal Surveys

Discussant : Herbert S. Parnes

Rapporteur : Ann Ratner Miller

Saturday, October 15 **Morning**

Plenary Session — Continental Room A

Chairman : Robert M. Hauser

8:45 Paper : William T. Bielby, Clifford B. Hawley, David Bills: Research Uses of the National Longitudinal Surveys

Discussants : Andrew L, Kohen
Ross M. Stolzenberg

Rapporteur : Larry Suter

10:45 Break

11:00 Paper : Harriet B. Presser: Childrearing, Work and Welfare: Research Issues

Discussant : James A. Sweet

Rapporteur : Lois B. Shaw

12:30 Social Hour — Consulat Restaurant (mezzanine)

Lunch — Consulat Restaurant

Saturday, October 15 Afternoon

Concurrent Session I Continental Room A

Chairman : Seymour Spilerman

2:00 Paper : Natalie Rogoff Ramsøy and Sten-Erik Clausen: Events as Units of Analysis in Life History Studies

Discussants : Nancy Karweit
Frank L. Mott

Rapporteur : Gilbert Nestel

3:30 Break

3:45 Paper : James N. Morgan, Martha Hill, Arland Thornton: On the Need for Better Data on the Interrelated or Joint Decisions during Economic Socialization

Discussants : Ann Ratner Miller
Norman B. Ryder

Rapporteur : Gilbert Nestel

Concurrent Session II Continental Room B

Chairman : Kenneth C. Land

2:00 Paper : Teresa A. Sullivan: Needed Research on Employment Discrimination:An Agenda for Studies with the NLS

Discussants : Lee Lillard
Francine Blau

Rapporteur : Clifford B. Hawley

3:30 Break

3:45 Paper : Sherwin Rosen: The Quality of Working Life

Discussants : Melvin L. Kohn
Paul Andrisani

Rapporteur : Clifford B. Hawley

5:15 Social Hour Continental Foyer

Evening : No conference activities are scheduled

Sunday, October 16 **Morning**

Concurrent Session III Continental Room A

Chairman : Harry Travis

8:45 Paper : James A. Sweet: Potential Research on Families

Discussants : Karen Oppenheim Mason
Robert T. Michael

Rapporteur : Steven M. Hills

10:15 Break

10:30 Paper : John J. McCall: The Job Search

Discussants : Michael Borus
Mark Granovetter

Rapporteur : Steven M. Hills

Concurrent Session IV Continental Room B

Chairman : Frank L. Mott

8:45 Paper : David L. Featherman: The Effects of Schooling and the Transition from School to Work

Discussants : Frank P. Stafford
Edward Lazear

Rapporteur : Larry Suter

10:15 Break

10:30 Paper : Elizabeth Douvan: Social Psychological Potential in the NLS

Discussants : Jerald G. Bachman
Richard P. Shore

Rapporteur : Paul Andrisani

12:00 Social Hour Consulat Restaurant (mezzanine)

Lunch Consulat Restaurant

Sunday, October 16		Afternoon
1:30 Plenary Session		Continental Room A
Chairman	:	Robert M. Hauser
Reports	:	The eight participants who presented memoranda in the concurrent sessions will each make a five-minute report of the principal points from their session as to analytical priorities and questionnaire content.
Commentary	:	Herbert S. Parnes
General Discussion		
Rapporteur	:	Peter B. Read
4:00		End of conference

Conference Participants

Lists of the participants in the May 9 planning meeting and the October 14-16 conference follow.

MAY 9 PLANNING MEETING

Social Science Research Council
CENTER FOR COORDINATION OF RESEARCH ON SOCIAL INDICATORS
1755 Massachusetts Avenue N.W., Washington, D. C. 20036

Robert Parke
Director

(202) 667-8884

May 6, 1977

Participants in the May 9, 1977 meeting to plan the SSRC conference on the National Longitudinal (Parnes) Surveys

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National Bureau of Economic Research
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Palo Alto, CA 94305
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OCTOBER 14-16 CONFERENCE

Social Science Research Council
CENTER FOR COORDINATION OF RESEARCH ON SOCIAL INDICATORS
1755 Massachusetts Avenue, N.W., Washington, D. C. 20036

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October 17, 1977

Participants in the October 14-16 SSRC Conference on the National Longitudinal Surveys

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IV. PAPERS, MEMORANDA

Most contributors to the conference were asked for ten-page memoranda rather than for papers, the distinction between memoranda and papers reflecting differences in length, formality, comprehensiveness, and accordingly, in level of effort. While SSRC will publish certain of the contributions[1] and others will appear in journals and elsewhere, publishability of the contributions was not deemed necessary, given that the purpose of the conference was to assist in planning the content of the NLS and the research based on the NLS. Moreover, most of the individuals whose views were needed would have been reluctant to commit themselves to the preparation of publishable papers in the short time allowed.

The topics which were chosen were meant to reflect the several conference goals. The paper by Bielby, Hawley, and Bills, "Research Uses of the National Longitudinal Surveys," produced under a contract between the Social Science Research Council and the University of Wisconsin's Center for Human Poverty Research, provides a review of the research which has been based on the NLS data, primarily by researchers outside the CHRR. As part of this review the authors have identified research gaps--areas for which the NLS data are appropriate but which have received little or no attention as yet.

While the Bielby, Hawley, and Bills paper reviews past research, the paper by Watts and Skidmore, "Labor Force Issues Circa 1984," anticipates new labor force issues which are expected to come into focus over the next decade; it is by design a speculative and broad-ranging paper.

Two contributions deal with methodological concerns. The paper by Singer, "Individual Histories as Units of Analysis in Longitudinal Surveys," shows how a variety of Markov chain models may be used in the analysis of longitudinal data. The memorandum by Ramsøy and Clausen describes a data management technique for the storage and retrieval of large amounts of life history data.

The remaining paper (Presser, "Childrearing, Work, and Welfare: Research Issues") and the balance of the memoranda are focused substantive documents. Each treats a specific substantive topic for which the NLS is or might be an appropriate data set. The relevance of the existing NLS data for the topic is discussed, and suggestions for modifications which will increase the relevance of the NLS for the topic are made.

The papers and memoranda which follow are arranged in the order in which they appear on the conference program.

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[1] SSRC is preparing a report on the conference for publication. The report will develop an agenda for socioeconomic life cycle research. It will consist of an overview of the conference proceedings and revisions of a selection of three or four of the papers and memoranda presented at the conference.

LABOR FORCE ISSUES CIRCA 1984

September 1977

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A paper prepared for the Social Science Research Council Conference on the National Longitudinal (Parnes) Surveys, Washington, D.C., October 14-16, 1977.

LABOR FORCE ISSUES CIRCA 1984

Harold W. Watts and Felicity Skidmore

This essay responds to Robert Parke's request for a frankly speculative discussion of research issues in the area of labor supply that are likely to develop in the 1980s. He even invites "soft" speculation, so we make no apologies for any softness in what follows. We do concentrate, in contrast to more sweeping exercises in futurology, on trends and problems that are already clearly visible but are being, if not totally ignored, at least treated in far too peripheral a manner by researchers. Even so, we are sure there are many ways to go wrong in forecasting what will (or should) dominate labor supply research in the 1980s. After all, even Orwell seems to have made one mistake in his prophesies--the omniscient one in 1984 will surely have to called "Big Sibling," whatever else Orwell will turn out to have forecast correctly.

Two Important Changes in Basic Orientation

Two themes will recur throughout the discussion that follows which we would like to draw explicit attention to here and emphasize that they are both changes in the approach to familiar problems rather than radically different issues for research or policy. The first is a change in the way we conceptualize society, and is closely related to the issue of life-cycle histories as units of analysis that will be discussed by Burt Singer. The second is a change in the way we think about the family unit within society.

Researchers should keep in mind more consistently than they have in the past the dynamic process of society—that society is a self-producing unit composed of individuals with finite lives, who are born, mature, produce, reproduce, and finally enter a dependent status prior to death. The basic point to be stressed is that choices made by individuals during their lives are not only crucial to current labor output, but also to the development of the capacity of future generations to produce output. Public policy will inevitably alter those choices; the overall objective of research should be to provide an accurate and comprehensive picture of how alternative policies can be expected to affect the character of current and _future_ labor supplies. It comes down to an exhortation to consider the labor force society is developing with as much attention as the one we are currently employing. The practice of implicitly regarding new cohorts of workers as infinitely and indefinitely malleable whatever their age is sterile. The intractible problems involved in securing full and remunerative employment for everyone can almost certainly be traced, in large part, to a systematic neglect of the processes that yield new generations of adults with widely disparate habits, skills, and degrees of socialization required for full participation in our society.

The second suggested change in orientation is concerned with the norms and prototypes that frame traditional consideration of social problems, policy measures, and research strategy. One of the most anachronistic concepts is the four-person family--a daddy that works, a mommy that doesn't, and two children. Average family size has fallen below four, but that is not the major failing of this picture of normal reality. First, 16% of all children are now raised in female-headed families and 13% of all family heads are female. We have usually regarded these families, although a disturbing and growing minority of all families, as the exception, not the norm. The cumulative incidence of this family type is unknown, but must certainly be growing to a level at which it had better be thought of as a common and "normal" part of life in our society if we are to gain insights into labor force behavior or childhood experience. We have been told that half the marriages now being formed will end in divorce. Most of the expartners will form new marriages, but not instantaneously. As a consequence of the inevitable gap a much larger fraction of women will have experienced family headship for a period, and a much larger fraction of children will have experienced life in a single parent family than current ways of collecting statistics show. It is time to stop regarding interruptions of dual-parent families as a relatively infrequent experience for children. It is much more widespread and therefore probably less pathological not only in the truistic but also in the behavioral development sense than our habits of thought would suggest. This perspective is particularly important in any assessment of the family inputs to the development of human capital (as we shall note further below). The female-headed family, however, is not the only or most numerous intrusion on the family stereotype. It is not generally recognized that over 50% of the mothers in two-parent families work and over 60% of childless wives work.* We are well past the point at which we can even describe the dual-earner phenomenon as a significant trend. It is now the most prevalent pattern. (Here again this is extremely important in any assessment of human capital development.)

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*The 1975 figures are that 54% of mothers in two-parent families worked sometime during the year, 61% of childless wives did so, and only 28% of husbands in husband-wife families were the sole earner on an annual basis.

Growing fractions of unmarried 18-24 year-olds can now be found outside their parental families, sometimes in one-person households, sometimes with other persons of the same age. This pattern is present for students and non-students, and regardless of labor force status. This phenomenon, which may be evidence of multi-household family arrangements, needs to be studied to determine whether the degree of economic dependence in the separate dwelling situation is similar to the status for those "living at home." Parallel questions are relevant for the growing proportion of elders who maintain separate households.

The strains created by the growing divergence of reality from the old norms--which have been built into many policies and practices--are evident in the ferment for change in social legislation and employment practices. But the old stereotypes are still alive in rhetoric and analysis of the family and the labor force. This conference is concerned with how to provide a sound understanding of the labor force. It is particularly damaging to have an outmoded and grossly inaccurate set of stereotypes built into the framework of research analysis, and it will become increasingly harder to understand and analyze labor force issues in the future unless we anchor our thinking in a truer picture of the normal social context.

Parenthood and Work

First of all, it must be recognized that parenthood is work. We all realize that work in the home represents an activity that should be included in GNP. We all know that if a man divorces his wife and pays for her services the measured GNP will rise. This is not quite what we are trying to say here. We are saying that the "nurturant services" are a particularly significant part of work in the home, and represent investment as well as consumption. This recognition leads directly to the necessity of including "nurturing" work in the analysis of (a) the development of the human capital that will constitute the labor force of the next generation, (b) the market labor supply of the current generation, and (c) the re-entry of women into the labor force when their children are grown. We shall discuss each in turn.

From the dynamic point of view, the critical issues in the family/labor force interaction relate to the reproduction of a labor force of appropriate size and human capital stock to be consistent with full utilization and exploitation of the technological and resource potential that will be available in the next generation. Economists have largely neglected this process, except for the part that takes place in formal education. The changes in norms of family life mentioned above, plus the growing documentation of the limitations of schooling as an equalizing influence in the development of human capital suggest that we can no longer afford to defend the neglect.

The tasks and functions performed by parents consume time and energy, intellectual and emotional, in large amounts. If it is recognized that parenting is work, it is easier to see that the household or family is more than a passive engine of consumption. The social product of the next generation depends on the quality of children of the current one. Anything enhancing that quality (enhancing those children's ability to produce and reproduce) should be regarded as investment. We have lately been made more acutely aware by the falling birth rate that, despite the increasing public role in the support of dependent elders, we will all one day depend on the productivity of our children. Present knowledge gives us little, if any, handle on classifying which household activities inputs do relate to later outputs and how. A long-term longitudinal survey of different cohorts, such as the NLS, could be a uniquely valuable vehicle for producing the requisite information. Recall data could be collected from the younger cohorts, an extension sample could be selected to get data from their parents. The cohorts in their child-rearing years could be asked about their current inputs and the subsequent occupation and earnings profiles of those children tracked.

The second implication of the recognition that parenting is work is the really quite obvious realization that the amount and intensity of this work will impinge on the parents' own market labor supply. The business of rearing children is a competing activity with participation in the paid labor force. The organization of household production, thus, can be expected to have definite effects on the amount, nature, and quality of work outside the home. Becker (1) has recently considered the dimension of effort as distinct from duration of a work activity. The distribution of raw time among workers is fairly uniform; the distribution of available effort (meaning not only the willingness but also residual energy available) may not be. This argument provides a possible basis for an analysis of wage rate differentials, in particular, male-female differences, which--considering current patterns of child rearing responsibility--could be partly due to relative differences in the residual effort left for market work rather than frankly discriminatory rate differences. More generally, to the extent that mores change with regard to nonmarket work, this may influence interpersonal wage rate differences. Obviously, "effort" is not directly measurable in any objective way. Any differences over time as discernible from longitudinal data will, in any case, at best reflect intergroup rather than interpersonal (or intragroup) differences. But the whole effort question can certainly be expected to affect, not only cross-section wage differences but also the relative career success of a given person over time. Perhaps the econometrics of unobserved variables should be exploited here.

The third implication of the recognition that parenting is work relates to the labor market reentry (entry) problems faced by women who have withdrawn from (never entered) the labor force because of parental responsibilities. These problems are now generally recognized. We do not, however, have a good understanding of either the reentry process, or the costs that have been incurred through depreciation of human capital. Capital theory distinguishes generally between depreciation which is a result of the use of the capital and depreciation which is simply the result of the passage of time. From this perspective human capital is basically different from other kinds of capital. It tends not to depreciate if it is used but rather to increase. Parenting may build up the capacity to parent; it is conceivable that it reduces the capacity for other kinds of work. Longitudinal data should be able to provide information on this crucial issue. And, again to the extent that mores are changing, it becomes increasingly crucial. We need to know not only different levels of human capital within cohorts, but also differing rates of depreciation according to life experience. Then we need to look at between cohort data to see whether those rates of depreciation of human capital have changed. Conceivably they could have been reduced as society's expectations have changed. The opportunity cost of a year out of the labor force may have been reduced as people come to expect to reenter, as employers expect to employ the middle-aged for the first time, as training opportunities to refurbish one's human capital open up. Equally conceivably, it could have increased. The opportunity cost of a year out of the labor force may have gone up with the increasing job complexity and specialization.

There are surely several other issues that may arise out of a greater awareness of the importance of parental activities in forming our future work force, and the changing social and economic forces that bear on the allocative choices made by parents. It seems likely these issues are closely related to labor force behavior both as cause and as effect. Our prediction is that many issues of both policy and research will be focussed on the family and the parental role during the 1980s, and that these are prime areas in which longitudinal analysis can make significant contributions.

Traditional norms and practices about intra-family specialization are breaking down. Families are experimenting and searching for ways to reconcile the dual roles of parenthood and an extra-familial career. It seems doubtful whether any single pattern will ever again command the sanction that society has given to the two-parent, single earner family. Individual preferences and talents are likely to result in a much more varied set of "production techniques" and associated market labor supply behaviors. As a matter of research it is important to understand the forces that lead to alternative choices, and to evaluate the outcomes of those choices on the human capital formation process.

Critical Transitions

At least three types of transition in a person's labor force status are of interest and possible importance as we move into the 1980s: the transition from adolescence to regular and "permanent" labor force status, mid-life career shifts, and the move into retirement or semi-retirement. These "passages" are frequently mentioned but remain somewhat indefinite and poorly understood. It is easy to find hypotheses, usually based on casual observation, that the patterns of behavior involved in these transitions are shifting, but there is not much firm evidence. Economists, in particular, are to be faulted for abstracting from them--perhaps because such discontinuities are uncomfortable for human capital theory.

Initial Labor Force Entry. The process of entry into the labor force is usually treated as indistinguishable from the process of leaving the student force. We ordinarily assume that the economic rationale will suggest a shift from schooling to work when the appropriate expected returns pass their balance point and cross over. But reality seems much more complicated than that--and to the extent that societal norms may be changing this oversimplification may produce progressively more distorted assessments of what is happening.

It looks as if the sharp once-for-all move from schooling to employment is not as common as it once was. There seems increasingly to be a more or less extended groping around in-and-out process that takes place before settling on a permanent job path. We assume this is true particularly for those who have passed the 12 years of schooling benchmark, but it may be as prevalent for the rest. Longitudinal data should give us the opportunity to use this trend to facilitate, among other things, a systematic look at the dual labor market hypothesis and all the implications that are assumed to flow from it.

Researchers would do well to examine the ways in which those who end up in the "good part" of dual labor markets use their opportunities to locate and project themselves into a promising line of endeavor. Freeman (4) has suggested that young persons are quite sensitive to market signals about how much and what kind of schooling pays off. But young workers may have a different ideas about what "paying off" means. Without dependents and with their youth, a job with a current income adequate for current wants (a car, skiing on the weekends) may be fine. A dead end job is perfectly satisfactory with this kind of time horizon. Paying off in the lifetime career sense may be a measure that many workers become interested in at a somewhat later stage. One can, in fact, imagine a labor market in which the dead end jobs were all taken by the young and strong with the short time horizons, and that transition from those to more open ended careers at a later stage was the normal pattern. A dual labor market answering to this description would not, we think, generate such censure.

Observation of the duality of the labor market has generated many hypotheses about recruitment into the secondary ("bad") part and about barriers in the way of moving from one part to the other that are unconfirmed. Detailed observation of employment patterns by means of longitudinal data should yield clearer definitions of the nature and possible socializing function of first jobs in the so-called secondary labor market, and provide a more satisfactory understanding than is now possible concerning how (and how many) persons seemed to get "trapped" in it.

Mid-Life Career Shifts. Mid-career transitions have not yet become so prevalent as to make us confident in asserting the existence of a trend. But there are enough straws in the wind to support speculation that more people may be choosing a distinct change in career during their forties. The increasing prevalence of two-earner families and women attempting to reenter the labor force when their children have left the household lead us to expect an increase in mid-life career shifts. When two members of the same family have, or in any case want to pursue, a career, compromises have to be made to the extent that the "best" job opportunity for each is not in the same place. Expanding job opportunities for women, and the new recognition that both earners should have equal opportunity (if not at the same time, at least one after the other), can be expected to result in an increased proportion of the labor force making major employment shifts to accomodate the mobility needs of their spouse. Related to this is the view that people in their middle years want or need a major career shift for psychological reasons—in economic parlance, perhaps a variety of job experiences during one's working life is a normal good. If so, the increasing incidence of two-earner two-income families will enable more people (particularly when the children are out of the house) to afford to indulge this preference. The expansion of opportunities for adult education will work in the same direction, as well as being a consequence of the phenomenon. Exploitation of the opportunities provided by longitudinal data is the only effective way of increasing our knowledge of the extent and nature of the processes of career change.

The Move into Retirement. The transition to retirement is, of course, a very current concern both because of increasing recognition of the rights of the elderly and because of the consequences for the age distribution of the dropping birth rate. This has already led to the relatively sudden passage of legislation raising the compulsory retirement age. It is not obvious to us (George Meany, Margaret Mead, and Grandpa Walton not withstanding) that there is a general inclination to prolong 'work as usual' on the part of people in their sixties or seventies, or that one will develop in response to increased opportunities. There may, however, be a potential supply of part-time and/or part-year workers who retain good health and vitality. And there probably will be a desire on the part of the younger, smaller cohorts whose taxes will support them to exploit what incentives there may be to keep the elderly gainfully employed. As the elder cohorts begin to contain more dual-earner families policy questions about the timing of the transition for spouses who differ in age and/or health status are pretty sure to be raised. In particular, the incentives and alternatives presented by public and private retirement policies will be more carefully scrutinized than in the past. But with respect to this passage, too, we are so far unable to answer effectively the behavioral questions on which solutions to these puzzles must depend.

All these transitions have important implications for the size and shape of the labor force. They also have, and we regard this as even more crucial, potential implications for the flexibility of the labor force—its capacity to accomodate to shifts in demand. This implies that knowledge of their behavioral underpinnings may yield the ability for policy to increase the flexibility of the labor force and reduce the size and persistence of labor force bottlenecks. Longitudinal analysis provides a unique opportunity to observe these changes, relate them to individual antecedents, and to changes in market opportunities. There is likely to be an increased interest in how policy might affect these labor "passages." It is now time to consider how theory and observation can be of help in designing policies to do just that.

Evaluation of Policy Changes

Evaluation of the social impacts of policy change is sure to be with us forever. And if the current legislative initiatives for tax and welfare reform, energy use, public job creation are any indication there will be plenty to evaluate in 1984.

An ongoing longitudinal data base is a very powerful and flexible tool for cross-checking the results of more closely focussed evaluations and, even in the absence of specialized studies, broad-based longitudinal data can be used for quasi-experimental analysis of the before and after variety (Campbell 2). Longitudinal data allow investigation of discontinuities along the time dimension within a model which explains the time trajectory of a certain behavior. An example would be analysis of a time series of fatal automobile accidents over a period that includes the institution of a 55 mile speed limit within a model including, say, passenger miles travelled, dimensions of the automobile stock, the age of drivers, and so on.

Changes in the income tax, social security taxes, and income supports for working families, whether they come from the Carter's welfare reform or other legislation, will alter the relation between gross and net earnings, and may change the effective differentials among wage rates according to sex or family status. The NLS should provide excellent opportunities to examine the net consequences of the changes on the labor supply of various demographic groups.

A large-scale public job creation effort will be undertaken if Carter's welfare reform package is adopted, designed to guarantee jobs for persons with family responsibilities. Even if Carter's proposal does not get through the Congress, we feel confident that expansion of public job creation programs is inevitable. Job creation programs have not been notably effective in the past. It seems almost inevitable that by 1984 everyone will be clamoring to know why this policy initiative has not lived up to the promises made for it. Program records, of course, can be expected to tell us about those who take the jobs. They cannot be relied on to give us plentiful follow-up data on them, however; and even if they have data on unsuccessful applicants, they will have nothing on those who, though eligible, do not apply. A general survey like the NLS will only include a small number of cases, but even those will be a lot better than no evidence at all.

Work requirements, in our view, are becoming increasingly the subject of scrutiny and potential change for the same set of reasons as public job creation. The American public generally seems to hold the view that (a) most Americans would rather work than take handouts, (b) the government has the responsibility of providing a job for anyone who needs one, and (c) those who are able-bodied and don't want to work should not get away with it. We now have a President who shares these views and is committed to making (b) and (c) happen.

Many economists and program designers are convinced that an effective work requirement would cost much more than it is worth, implying that work tests likely to be included in legislation are unlikely to have an effect. But there is not much evidence on this issue and our prediction is that this will be increasingly considered an indefensible gap. As (of if) the economy moves closer to full employment, and the income support program affects the reservation wage for those "expected to work," longitudinal data such as the NLS should be able to shed light on the effects, if any, of work requirements. Various groups, for instance, are treated differently with respect to work requirement regulations, and new legislation may make differential changes in these requirements according to demographic status. Do these differences show up in the longitudinal data? And if so, what is the pattern? Labor unions and others worry about the effect of work tests. If people are required to take certain jobs at the minimum wage, for instance, does this undercut the bargaining power of workers doing similar jobs? Longitudinal examination of wage trends within this framework should yield new information. Again, small fractions of the various samples will be directly affected, but an offsetting advantage will be the availability of fully comparable data on non-eligible earners competing in the same labor markets who may experience indirect effects.

The final example we shall quote of important policy evaluation that will need to be undertaken is the effect of whatever energy policies this administration achieves. Such policies carry obvious direct implications for the labor force through their effects on industrial technology and mix. But possible implications are also more far reaching. Higher relative prices for fuels may be expected to affect residential choices and commuting patterns--the effects on which will be mediated, among many other factors, by policy developments in the areas of public transportation and housing policy.

Although we do not as yet have any clear idea of what new programs and policies there will actually be over the next five to ten years, you can depend on it that there will be some. If, as is likely, the current emphasis on pursuing thorough evaluation of policy effectiveness continues, there will be many opportunities for the NLS to make important contributions.

Full Employment and Inflation

There is not much basis for supposing that the problem of inflation will be solved by the 1980s, so we have tried to speculate on ways in which the NLS might shed some light on the issue.

The notion of a simple trade-off between unemployment and inflation has run into obvious trouble in explaining recent experience. Nevertheless, there is at least an abiding belief that unemployment is necessary if price levels are to remain under control. One argument given for why this should be so is that the unemployed who stand ready to take the jobs keep downward pressure on wages. To the extent that this "reserve army" argument is a serious one, two related issues need examination. First, equity certainly argues against imposing heavy hardship on those who must serve as canon fodder in the anti-inflation war. Fellner (3), who espouses a version of the reserve army argument, has proposed some possibly long-term income support mechanism to relieve this hardship. But, the efficacy of a group of unemployed persons as a deterrent to inflationary wage increases must depend on their job readiness--the rapidity and ease with which they could substitute for those currently holding the job. How rapidly does the human capital involved here depreciate? This leads to the second issue. Not only equity but also effectiveness may argue in favor of some process for rotating any necessary burden of unemployment. Another possible way of maintaining the job readiness of the unemployed may be to develop some sort of "skills bank"--some program which allows for the storing of skills without the danger of their atrophying from lack of use. Better knowledge of what happens to marketable labor skills during spells of unemployment of varying lengths is important--as is knowledge of the depreciation attributes of human capital referred to above in the discussion of parents' reentry into the labor market. And this knowledge must be disaggregated enough to tell us about differences under alternative income, earner, and family circumstances.

In analysis of the employment/price-level dilemma , the behavior patterns that accompany or result in labor market adjustment are important components. This is related to the issues raised above concerning possible future increases in labor market flexibility. Migration within and among labor markets is an obvious one. The process that leads people to make job change decisions within and among occupational categories is another--of which sources of information and decisions to look for information about job alternatives are important components. Job information patterns may be an area especially amenable to a long-term longitudinal survey. All adjustments are made on the basis of information, correct or incorrect. What information is spontaneously there? Is there usually an overt effort to look for information? How much migration is in response to bad information? How much of such information do people simply absorb as background to be used when and if they decide to consider a move? How much can be absorbed only when it becomes relevant to a specific question that is being asked? Answers to these questions should enable us to design job information policies that will be effective in increasing overall job mobility. It is not clear that we have any now or that we know how to design them.

Finally, few are currently willing to talk openly about wage and price controls. It would not surprise us if over the next decade the U.S. moves closer in that direction in its continuing effort to reconcile full employment and price stability. The worker's job adjustment process is a relevant, though insufficiently understood factor in how effective those controls can be.

A viable system will clearly depend upon whether an information and planning structure can be devised to anticipate and promote responses to imbalances in labor markets, whether these imbalances are occupational, geographical, or along some other dimension. The most promising approach will surely be one that provides as little modification of existing adjustment processes as possible and, indeed, uses knowledge of those processes to project existing trends and assess the consequences of intervention.

It has already been suggested that intermittent changes between schooling and work may be becoming more common among young adults. Adult education and retraining should also be regarded as a possible step in the job change or labor force adjustment process. Here we need to understand more about the conditions under which adults choose to make use of public or private education and training facilities. Such options could become an important dimension in increasing the flexibility of the experienced labor force. This too could make a contribution to the unemployment-inflation puzzle.

Concluding Remarks

Many of the issues that have been mentioned above are familiar ones, and that is because they are inherently perennial or at least recurrent. We will always need to evaluate the effectiveness of policies, and there is no end in sight for the conflict between employment and price stability. The changes in our approach to these issues is related both to the demographic changes in the labor force and to the increased relative importance of the human capital or quality dimension of that labor force.

We must now think in terms of dual-earner families, and we must address the human capital formation and maintenance process more directly, both for children and for adults at various stages in their life cycle. The work outside the home can no longer be neatly separated along sex lines from work inside the home, and work in and around the home must be recognized as having important effects on new generations of workers. Hence, the evaluation task is much more complicated and dynamic than has been so far acknowledged. In addressing these issues there is a critical need for longitudinal information, covering as long a span as possible. Intergenerational data are needed for some of the questions; recall information, with all its hazards, is the best we can do at the present. Analytical and statistical techniques will also have to be developed and adapted to make efficient use of data on life histories. New concepts of full employment may also be needed--as public discussion is beginning to recognize.

But--apart from the familiar issues--new trends in population, technology, and theory have also raised new analytical issues that are central to an understanding of labor force changes. These have to do with the process of reproducing cohorts of new labor force entrants that are well equipped to participate in the society's work, and the departures from simple straight-line career trajectories on the part of adults. We have suggested a few directions that seem promising. But these, and others, certainly demand a more dynamic form of analysis and require data on life histories or major parts of life histories to generate and evaluate appropriate behavioral hypotheses. Burt Singer's paper for the conference provides a systematic treatment of those analytical and statistical issues.

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Individual Histories as Units of Analysis in Longitudinal Surveys

by

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Individual Histories as Units of Analysis in Longitudinal Surveys

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1. Introduction

The recent availability of large longitudinal data sets has focused attention on the dearth of analytical tools which are available for exploiting the unique features of such data. Particularly prominent among existing longitudinal surveys are the National Longitudinal Survey of Labor Force Experience (Parnes [24]), the Michigan Panel Study of Income Dynamics (Morgan [23]), and the Wisconsin Youth Panel (Sewell and Hauser [27]), each of which attempts to measure various facets of the education and labor force experience of individuals over a substantial portion of their lives. Also of considerable interest are the National Crime Survey and several victimization surveys as described in Fienberg, [16]. An important feature of these data sets which has no counterpart in cross-sectional samples is that one may carry out empirical studies in which individual histories --or household histories-- are the basic unit of analysis. This focus immediately highlights new kinds of questions which can be answered with longitudinal data and that cannot be addressed otherwise. For example, in the context of labor force participation, individual histories can be utilized to construct distributions of the durations of employment and unemployment for persons in particular occupational groups, age ranges, and geographical regions. Conditional probabilities of persons transferring from one job category to another given their age and earlier employment history can be computed from work history data, whereas these probabilities are empirically outside the scope of cross-sectional surveys. Additional problems addressable with longitudinal data but outside the scope of cross-sectional surveys are:

(i) inter-cohort comparison of individual earnings profiles;

(ii) identification of the prevalence of chaotic career lines as discussed in the segmented labor market literature (see M. Piore [25]);

(iii) measurement of the influence of tax policies and income maintenance programs on labor supply decisions and attitudes toward work.

If questions such as those listed above are judged to be of central importance when a longitudinal survey is being planned, then continuous histories for each individual represent the ideal form of data. Thus in the employed, unemployed, out of the labor force trichotomy, it would be desirable to know in which of these states each individual is situated for all times after, say, age 17. Unfortunately, few longitudinal surveys have been designed with such questions in mind --for exceptions see the retrospective survey of Coleman, et al [13] and the life history data of N. Rogoff [26]. As a result, if questions answerable in terms of detailed individual histories are of interest to a researcher, he is usually confronted with data where the histories contain gaps of various kinds. The methodological issue then is how to utilize such fragmentary data to test theories of individual movement which incorporate both the observed and unobserved events.

My mandate for this conference is: "to give guidance to the planners of the NLS and other participants in the conference as to analytical strategies suitable for NLS and other longitudinal survey data." Clearly this is a rather tall order which, if taken literally, would require an encyclopedia to fulfill. Furthermore, genuinely satisfactory advice, particularly for histories with gaps, must await some extensive forays into as yet uncharted mathematical and statistical waters. Because of this situation, I have decided to narrow the scope of my remarks to a review and outline of strategies for effectively describing and modeling individual histories. My emphasis on this aspect of the analysis of data such as the NLS is motivated by the fact that with few exceptions --e.g. Heckman [18], Borjas and Mincer [6], Spilerman [31], Rogoff [26], Stewman [32]-- individual histories have hardly been studied at all in longitudinal data, while at the same time they represent a unique feature of such surveys which is also at the conceptual core of studies of social and economic change over the life course.

2. An Exploratory Strategy for Gap-Free Sections of Individual Histories

Although the observed individual histories on variables such as employment status contain considerable gaps in various section of the NLS, Michigan Income Dynamics Panel, and most currently existing longitudinal surveys, it is useful to begin a discussion of analytical strategies by treating gap-free segments of the histories. We illustrate the ideas with a strategy for modeling movement among the three employment status categories: employed, unemployed and engaged in a job search, and out of the labor force.

This kind of strategy is applicable to the first job after termination of full-time schooling in the NLS older men's survey and to subsequent portions of the histories which may effectively be regarded as gap-free --e.g. the years 1965-1966, 1970-1971, and 1975-1976.

As an initial baseline class of models we introduce the bivariate Markov processes $(X(t), Y(t))_{t\geq 0}$, where the first coordinate, $X(t)$, is identified with one of the three possible employment statuses and $Y(t)$ is identified with duration prior to time t in the state $X(t)$. The first coordinate $\{X(t)\}_{t\geq 0}$ of such a bivariate Markov process is called a semi-Markov process. For a nice expository account of such processes see J. Hoem [19]. Among the quantities of interest to us for modeling purposes are:

(i) $Q_{ij}(t,u,v)$ = (probability that an individual will move to state j in the time interval (t, t+v) given that he is in state i at time t and has been there for a length of time u).

For selected populations where individuals start employment nearly simultaneously --(e.g. within one or two months after the completion of full-time schooling)-- we need only consider $a_{ij}(t,v) = Q_{ij}(t,0,v)$.

(ii) $\mu_{ij}(t,v)$ = (expected number of visits to state j in the time interval (t, t+v) for an individual who is in state i at time t).

Note: If state 1 = employed, state 2 = unemployed but engaged in a job search, and state 3 = out of the labor force, then $\mu_{12}(t,v)$ may be interpreted as the expected number of spells of unemployment during the age range (t, t+v) for individuals who are employed at age t.

(ii) $\sigma_{ij}(t)$ = (expected length of time spent in state j after age t for an individual who is in state i at age t).

For detailed discussion of the mathematical relationships among these and other quantities which describe individual histories, see Mode [21], Hoem [19], and Littman and Mode [20]. Our purpose in mentioning items (i)-(iii) in the present discussion is simply to indicate the kind of numerical quantities which can effectively describe individual histories and also be embedded in simple mathematical models.

Outline of a Model Fitting Strategy

(1) As a first step in describing individual histories tabulate, for each individual, $T_1^{(i,j)}$ = (duration in employment status i after completion of full-time schooling before transferring to status j) and the independent variables $(X_1, \ldots, X_m)$ which are viewed as a priori candidates to influence $T_1^{(i,j)}$ --e.g. years of schooling completed, occupation-industry classification, etc. Estimate $a_{ij}(t,v)$, and assess the relative influence of the independent variables $X_1, \ldots, X_m$ on this probability. Observe that in the present discussion, t represents age. Techniques for estimating waiting time distributions influenced by independent variables and which could be utilized with the NLS are described in Cox [14] and Breslow [7].

(2) Repeat the above procedure on

$T_2^{(j,k)}$ = (duration in employment status j after time $T_1^{(i,j)}$ before transferring to status k and call the estimated waiting time probability $a'_{j,k}{}^{(t,v)}$.

(3) If $a_{i,j}(t,v) \approx a'_{ij}(t,v)$ then a single semi-Markov process $X(t)$, $t \geq 0$, can describe the first two employment status episodes. However, if $a_{ij}(t,v) \neq a_{ij}(t,v)$ this suggests possible dependence of the duration of the second episode --i.e. interval between change of employment status--on the duration

and status of the first episode.

(4) Repeat steps (2) and (3) for as many successive gap-free episodes as there are in the data. If a single matrix of functions $\| a_{ij}(t,v) \|$ describes each episode, then one semi-Markov process can describe the employment status process over multiple episodes. It is, however, doubtful whether the independence of past and future events implied by such a description actually holds for many sub-populations with the possible exception of those persons having chaotic career lines --see e.g. M. Piore [25] for a discussion of this notion. Test procedures to assess the extent of dependence of a given event --i.e. change of employment status-- on events in earlier time epochs are given in Billingsley [5] and Anderson and Goodman [3].

For descriptive purposes, one has the option of using separate semi-Markov processes to describe employment behavior in epochs between different changes of employment status or attempting to develop a single model --incorporating dependence of a given event on events in earlier epochs-- to describe the employment status process over the life course. To date there is insufficient experience on large longitudinal data sets with each of these alternatives to enable anyone to give well-grounded preferences and provide general advice. We can, however, recommend that the modeling experience of C. Mode and G. Littman [20], [22] --utilizing age-dependent semi-Markov models on the contraceptive-pregnancy histories in the Taichung Medical IUD experiment [17]-- is worth studying, as an example of the kind of analysis of individual histories that could be attempted with gap-free sections of the NLS, the Michigan Income Dynamics Panel, and the Coleman-Rossi continuous work history file.

An alternative to Mode and Littman's strategy of linking age-dependent semi-Markov models in time series, are the tests of hypotheses that chains of order greater than one provide a good fitting, readily interpretable description of individual histories. Despite the interesting early work of T. W. Anderson [1], [2] utilizing this strategy on P. Lazarsfeld's voting panels as well as the existence of statistical procedures to carry out such tests, we are not aware of any serious attempts --with the more recent longitudinal files-- to extend this program to model the dependencies of a given event on previous events and the durations between them.

3. Earnings Profiles and Continuous State Processes

The models and examples mentioned in section 2 emphasized histories of variables which can assume a finite number of possible values --e.g. job categories, employment statuses, etc. On the other hand, individual earnings histories, which are of central importance in the human capital theory of individual investments and their returns over the life course, are most naturally described by processes whose states --identified as earnings-- can assume a continuum of possible values. Although there is a well-developed mathematics literature on semi-Markov processes with continuous state spaces [10] as well as a literature on continuous state processes incorporating dependence on past history --e.g. Gaussian processes [15]-- such models, which are natural candidates for the description of individual histories, have with rare exception --e.g. Heckman [18]-- not been utilized in a major longitudinal study. That this is a place where much interesting research could be carried out is already suggested by the very nice study of Borjas and Mincer [6] on the distribution of earnings profiles in the Coleman-Rossi continuous work history data. In this investigation duration in current job emerges as an important independent variable in regressions where the function of working age, log(earnings)(t), is a dependent variable. This exploratory evidence suggests the importance of a consideration of analytical strategies for describing the tri-variate stochastic process $(X(t), Y(t), Z(t))_{t\geq 0}$ where $X(t)$ is an individual's job category --or possibly occupational status score-- at working age t, $Y(t)$ = duration in the job held at working age t, and $Z(t)$ = earnings at working age t. A systematic attack on this problem, including the introduction of independent variables --in analogy with Cox [14], Spilerman [31], Heckman [18]-- would provide a natural link between the status attainment literature in sociology which primarily focuses on $(X(t), Y(t))_{t\geq 0}$ and the human capital interpretation of the earnings profile, which focuses on $(Z(t)_{t\geq 0}$. In effect, the Borjas-Mincer analysis could be viewed as a description of the $Z(t)$ coordinate, while A. Sorenson's [30] status attainment profiles --also based on the Coleman-Rossi data-- are simply the expected valued $EX(t)$, $t \geq 0$ of the first coordinate of the above mentioned tri-variate process.

4. Individual Histories with Gaps and Other Forms of Censoring

A substantial estimation and hypothesis testing literature for censored observations of duration times has developed in response to the needs of medical follow-up studies. These techniques --described in Breslow and Crowley [8], Chiang [9], Cox [14], and Barlow, Bartholomew, Bremmer, and Brunk [4]-- could be utilized on the NLS data to estimate waiting time distributions for persons lost from the survey after the first or second wave or for whom there is considerable uncertainty about the timing of a change of employment status. Censored duration time observations also lead to difficulties in identifying a unique structural model --within a proposed class-- consistent with a set of observations. For an interesting first step in addressing the identifiability question for censored duration time data, see Tsiatis [33]; however, much methodological work remains to be done here.

In addition to censoring of waiting times in fixed states, it is frequently the case in panel studies that multiple unobserved transitions --e.g. spells of employment and unemployment-- may occur between the waves of the panel. This can partially be controlled at the design stage of a survey if retrospective questions are built into each wave of the panel. This is quite feasible for questions about jobs, employment status, or earnings; however, for attitudinal questions, retrospective data is extremely unreliable. Thus unobserved multiple transitions are, and probably will continue to be, a difficult facet of longitudinal survey data which presents unusual modeling problems. We illustrate a strategy for dealing with this problem which is the simplest prototype of the kind of analysis that can be carried out with attitudinal questions.

Unobserved Multiple Transitions--An Example

As part of a study of interpersonal relationships among American high school youth in the 1950's, J. Coleman [11] asked students in Northern Illinois high schools in October 1957 and again in May 1958 whether or not:

(1) they perceived themselves to be members of the leading crowd in their school;

(2) they can maintain their principles and be a member of the leading crowd.

Affirmative answers to each question were scored + and negative answers were scored -. Thus an individual can respond to the above questions in one of four possible ways at each observation time: (Response to (1), Response to (2)) = (+,+), or (+,-), or (-,+), or (-,-). We then identify these responses as possible states of a stochastic process. The observed counts for boys and girls based on the above mentioned two waves of panel data are:

TABLE I

Boys, Observed Counts

			Response, May 1958			
Question	(1)		+	+	-	-
		(2)	+	-	+	-
	+	+	458	140	110	49
Response	+	-	171	182	56	87
October 1957	-	+	184	75	531	281
	-	-	85	97	338	554

Source: Coleman [12], pg. 171

TABLE II

Girls, Observed Counts

			Response, May 1958			
Question	(1)		+	+	-	-
		(2)	+	-	+	-
Response October 1957	+	+	484	93	107	32
	+	-	112	110	30	46
	-	+	129	40	768	321
	-	-	74	75	303	536

Source: Coleman [12], pg. 168

Although the attitudes (1) and (2), held by each student, were assessed at times spaced nine months apart, their attitudes on these questions could have changed multiple times between October 1957 and May 1958. Such changes are, of course, non-observable. In connection with the above data Coleman proposed a theory about attitude change in an adolescent population on issues such as (1) and (2) in which individuals could change their attitude on either issue alone at any one time but could not change their attitude on both issues simultaneously.

Examination of Tables I and II reveals that in both the male and female populations some individuals had changed their attitude on both issues, as observed at the survey times --e.g. 32 girls responded (+,+) in October 1957 and (-,-) in May 1958; 75 boys responded (-,+) in October 1957 and (+,-) in May 1958. Since the times at which an individual changes his/her attitude is unrelated -- to the best of our knowledge-- to the survey times, our only recourse in assessing compatibility of data such as Table I and II with Coleman's theoretical proposition, is to first propose a variety of plausible models of individual attitude change which allow for transitions at arbitrary times. We then assess whether the observed data can --at least to within small errors-- be generated by one or more of the proposed models.

A simple baseline class of models which were suggested by Coleman for comparison with Tables I and II are continuous time Markov chains with stationary transition probabilities governed by the special 4×4 intensity matrices

$$Q \in \underline{Q}_1 = \left\{ \begin{array}{l} Q : q_{ii} < 0, \quad q_{ij} \geq 0, \; i \neq j, \quad \sum_{j=1}^{4} q_{ij} = 0 \\ \\ \qquad q_{14} = q_{23} = q_{32} = q_{41} = 0 \end{array} \right\} ;$$

that is, instantaneous change is possible only on one attitude at a time. Transition probabilities $P(0,t)$ for these models satisfy the matrix differential equations

$$\frac{dP}{dt} = QP, \qquad P(0) = I \tag{1}$$

where $Q \in \underset{\sim}{Q}_1$ (see Coleman [12] for the restricted class $\underset{\sim}{Q}_1$); and $P(0,t)$ can be represented as

$$P(0,t) = e^{tQ} \quad . \tag{2}$$

Note: Transition probabilities between a pair of states conditional on a transition occurring --whether it is observed or not-- are given by $m_{ij} = q_{ij}/(-q_{ii})$, $i \neq j$.

In order to assess whether the transition matrices induced by Tables I and II according to

$$\hat{P}(0,\Delta) = \left\|\frac{n_{ij}}{n_{i+}}\right\| \tag{3}$$

(here, n_{ij} = number of individuals in state i in October 1957 who are also in state j in May 1958,

$n_{i+} = \sum_{j=1}^{4} n_{ij}$,

and Δ = 9 months)

can be approximately represented in the form (8) we introduce the matrix norm

$$\|A\| = \sqrt{\sum_i \sum_j |a_{ij}|^2}$$

and determine Q_{boys} and Q_{girls} for which

$$\min_{Q \varepsilon \underset{\sim}{Q}_1} \|\log \hat{P}_{boys} - Q\|$$

$$\min_{Q \varepsilon \underset{\sim}{Q}_1} \|\log \hat{P}_{girls} - Q\|$$

are attained.

The primary quantities of interest are the probabilities

$$M = \begin{bmatrix} -\frac{1}{q_{11}} & & \underline{0} \\ & \ddots & \\ \underline{0} & & -\frac{1}{q_{44}} \end{bmatrix} Q + I$$

interpreted as probabilities of movement between pairs of states conditional on a change occuring. These probabilities area given in terms of the least squares intensity matrices, Q_{boys} and Q_{girls}, by

$$M_{boys} = \begin{bmatrix} 0 & .6148 & .3852 & 0 \\ .6546 & 0 & 0 & .3454 \\ .3561 & 0 & 0 & .6439 \\ 0 & .2133 & .7867 & 0 \end{bmatrix}$$

$$= \begin{bmatrix} -\frac{1}{(q_{11})_{boys}} & & \underline{0} \\ & \ddots & \\ \underline{0} & & -\frac{1}{(q_{44})_{boys}} \end{bmatrix} Q_{boys} + I$$

and similarly,

$$M_{girls} = \begin{bmatrix} 0 & .5361 & .4639 & 0 \\ .6897 & 0 & 0 & .3103 \\ .2367 & 0 & 0 & .7633 \\ 0 & .2344 & .7656 & 0 \end{bmatrix}$$

Computing tables of expected values under the model proposed by Coleman we obtain

$$\begin{bmatrix} n_{1+} & & \underline{0} \\ & \ddots & \\ \underline{0} & & n_{4+} \end{bmatrix}_{boys} e^{Q_{boys}} = \begin{bmatrix} 454.3 & 134.9 & 108.8 & 65.6 \\ 174.6 & 182.6 & 47.1 & 91.7 \\ 187.2 & 56.7 & 539.2 & 286.7 \\ 93.2 & 92.7 & 334.2 & 554.0 \end{bmatrix} \tag{4}$$

$$\begin{bmatrix} n_{1+} & & \underline{0} \\ & \ddots & \\ \underline{0} & & n_{4+} \end{bmatrix}_{girls} e^{Q_{girls}} = \begin{bmatrix} 479.1 & 90.6 & 104.7 & 41.5 \\ 111.8 & 112.4 & 22.4 & 51.5 \\ 124.8 & 38.0 & 770.6 & 324.5 \\ 57.6 & 77.5 & 305.6 & 544.4 \end{bmatrix} \tag{5}$$

Comparing (4) and (5) with Tables I and II reveals that constrained time-homogeneous Markov models with $Q \in \underset{\sim}{Q}_1$ provide very good approximations to this data. The key methodological lesson of these calculations is that observations on a process, where multiple transitions occur between the observation times, can still be effectively tested for compatibility with theoretical models which incorporate these non-observable events. Furthermore, the preliminary conclusions about the adolescent society listed below are much more transparent in M_{boys} and M_{girls} then in Tables I and II or in the transition matrices $\hat{P}(0,\Delta)$ induced by them. These conclusions are:

(i) The most probable transitions for both boys and girls are $(+,-) \rightarrow (+,+)$; $(-,+) \rightarrow (-,-)$; and $(-,-) \rightarrow (-,+)$.

(ii) Although both boys and girls who perceive themselves outside of the leading crowd and who don't feel you must give up on principles to be in it will tend to change their mind on the issue of principles, girls have a somewhat higher probability than boys of feeling this way. In particular, $(m_{34})_{girls} = .7633 > (m_{34})_{boys} = .6439$.

(iii) For persons perceiving themselves outside the leading crowd and feeling you must go against your principles to be in it, it is much more likely that they will change their attitude about the issue of principles before they are in the leading crowd than the reverse. (i.e. $m_{43} > m_{42}$ for both boys and girls)

Having demonstrated that a restricted class of time-homogeneous Markov models provides a readily interpretable and remarkably good approximation to the data in Tables I and II, it is necessary to add a note of caution. In particular, a variety of non-Markovian models of both homogeneous and heterogeneous populations, which are indistinguishable from time-homogeneous Markov models on the basis of two waves of panel data, can also represent Tables I and II. Thus we view the conclusions based on the preceding calculations as suggestive but tentative pending a comparison of

$$e^{(k-j)\Delta Q_{boys}} \quad \text{and} \quad e^{(k-j)\Delta Q_{girls}}, \quad 0 \leq j < k \,,$$

with observed matrices $\hat{P}_{boys}(j\Delta,k\Delta)$ and $\hat{P}_{girls}(j\Delta,k\Delta)$ arising from additional waves of the panel study.

For a more detailed technical discussion of the strategy utilized in the above example, see Singer and Spilerman [28], [29]. However, it should be pointed out that a major set of open methodological problems remain to be addressed in order to extend these ideas to models which incorporate strong dependence of a given response on responses at earlier times.

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CHILDREARING, WORK, AND WELFARE:
RESEARCH ISSUES*

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We have witnessed over the past decade some remarkable trends relating to childrearing, work, and welfare. One is the recent decline in the number of children people have or plan to have. Whereas completed family size had been increasing for many years following World War II, there is recent evidence that the trend is reversing. Ever-married women aged 30 to 34, for example, who are near completion of their family size, had an average of 3.0 births in 1965; comparable women in 1975 had an average of only 2.4 births (U.S. Bureau of the Census, 1976b: Table G). That this trend toward smaller families will continue is suggested by the decline in the number of children expected by married women aged 18 to 24: from 3.1 in 1965 to 2.2 in 1975 (U.S. Bureau of the Census, 1976b: Table A).

Young adults not only have fewer children to rear than was true 10 or 15 years ago, but they also are increasingly likely to utilize other adults to assist in child care. Trend data for comparable populations are not available, but as of 1974-1975, 8 out of 44 million children aged 3 to 13 were cared for during the daytime when not in school by someone other than their parents (U.S. Bureau of the Census, 1976a: 1). The number would be greater if we included children under three and evening care as well.

Concurrent with the decrease in family size and the extensive use of non-parents for child care is the increase in female employment outside the home. This is most notable for women with children of preschool age. The labor force participation rates of ever-married mothers with children less than 6 years of age was 18.2 in 1955, 25.3 in 1965, and 38.9 in 1975 (U.S. Department of Labor, Employment Standards Administration, 1976: 4).

Married women (husband present) with preschool age children have lower rates than women who are separated, divorced, or widowed, but labor force participation was substantial for both groups in 1975 (36.6 and 55.0, respectively). Even for women with children under three years of age, the participation rate in 1975 was 32.7 for married women (husband present) and 49.9 percent for other ever-married women (U.S. Department of Labor, Bureau of Labor Statistics, 1976, Table E).

Along with the rise in the labor force participation rates of both married and unmarried mothers with young children, has been the rise in the number of father-absent families. The total number of "female headed households" with children less than 18 rose from 2.6 million in 1960 to 2.9 million in 1965, and then leaped to 4.1 million in 1971.* The number of women with children receiving public assistance also rose dramatically: Aid to Families with Dependent Children (AFDC) caseloads quadrupled between 1960 and 1971 (Ross and Sawhill, 1975: Table 24). There was both an increase in the number of mothers eligible to receive welfare payments and an increase in the participation rates of eligible women.

Underlying all of these trends has been a basic change in the division of labor among parents concerning childrearing and market work. Women either have been assuming greater responsibility for the financial maintenance of their children or have become increasingly dependent on the state for financial aid; in both cases, men's traditional responsibility as the major if not sole providers for their children has eased considerably.

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* The term "female headed households" is put in quotations, since the use of a headship designation for families has been challenged as inaccurate and inappropriate, and will no longer be used by the U.S. Bureau of the Census in the decennial census.

Men, however, have not assumed in exchange greater responsibility for the traditional childrearing (and housekeeping) activities of women; the pressure instead is on the state to pay for child care by either supporting the mother to stay home or subsidizing alternative child care arrangements so that she may work. To better understand the underlying dynamics of this "role shift gap," and its implications for social policy, we need to examine some of the specific interrelationships between childrearing, work, and welfare. The discussion to follow, which essentially raises many questions about these interrelationships, will hopefully serve as a directive for future research. As we shall see, we have barely begun to acknowledge the complexity of these issues or their social significance.

Childrearing and Work

In exploring the relationship between childrearing and work, it should be acknowledged at the outset that childrearing _is_ work. It may or may not be market work. But, in either case, it involves considerable time and energy. Insofar as alternative activities cannot be pursued simultaneously, the opportunity costs for full-time childrearers may be substantial. A relevant issue that has received minimal attention is the measurement of these opportunity costs, both social and economic. Do women, for example, who drop out of (or do not enter) the labor force in order to rear their own children experience only a temporary postponement in educational or occupational attainment, or are the long-term consequences substantial? Is the length of their absence from the labor force a critical factor? Does shifting from full-time to part-time employment, rather than dropping out of the labor force altogether, minimize the cost? If one assumes that most women have achieved their non-familial aspirations at the time childrearing activities begin, or that they would never have achieved them regardless of whether or not they had children, then the consequences may be minimal. Recent evidence suggests that this is not the case for women who begin childbearing at an early age (Presser, 1975b; Furstenberg, 1976; Waite and Moore, 1977). Relative to women who started their families at a later age or relative to childless peers, the educational and occupational attainment of young mothers is less. The time perspective for these studies, however, is limited: about 5 or 6 years. Waite and Moore (1977:15), using data from the National Longitudinal Surveys and comparing educational attainment at ages 18, 21 and 24, found that with respect to education "young mothers do not 'catch up' with their childless age peers as they become older." The assessment of the occupational effects of early childrearing would seem to require a longer time perspective than when examining educational effects. We need to assess not only the long-term effects of early versus late motherhood on non-familial role attainment, but also the long-term impact on people's lives of motherhood versus fatherhood. Accordingly, we need comparable data for men and women on the timing and number of children in relation to subsequent non-familial achievements.

It may be questioned, however, whether we can measure the "true" long-term consequences of childrearing for women in a society that restricts their work options basically to a few traditional female occupations, such as teacher, nurse, secretary, apparel operative, waitress, or private household worker. The limited range of choices may itself be a consequence of treating most women, especially mothers, as temporary workers. A crude assessment of the effect of sex differences on labor force opportunities could be had by comparing the occupational careers of men who have sole custody of young children (due, say, to early widowhood) with women in similar economic situations comparable in age and education prior to becoming sole custodians. Of course, sex differences in motivation may be relevant, but one could argue that this is a structural effect as well.

Although there are undoubtedly some opportunity costs for women as a consequence of their role in childrearing (which may or may not be perceived), there are of course satisfactions derived from this experience that help to sustain its practice. The great majority of women still want children: as of 1976, 90 percent of all women in the United States aged 18 to 34 said they expected to have (or had) at least one child (U.S. Bureau of the Census, 1976: Table 4). But apparently women do not want or are unable to devote as much time to childrearing as in the past. As previously noted, the number of children women have is lessening, and the interval between childbirth and market work is narrowing.

Young women in the labor force still, however, have lower fertility than those not in the labor force; June 1975 estimates for currently married women are as follow (U.S. Bureau of the Census, 1976; Table 10):

	Children per 1,000 wives	
Age of wife	In labor force	Not in labor force
18-24	511	1,205
25-29	1,225	1,966
30-39	3,903	4,409

It is generally recognized that fertility may influence labor force participation as well as vice versa, and there have been recent efforts to disaggregate this two-way process (Mott, 1972; Presser, 1975a; Waite and Stolzenberg, 1975). The question has not been raised, however, whether the availability or suitability of alternative child care arrangements attenuates this relationship. Would the differential in fertility be greater if women with young children who want to work but are unable to do so because of difficulties in arranging child care were excluded? To what extent are there such women, and who do they more closely resemble in their fertility behavior -- employed or other non-employed women? One study found that 32 percent of women who wanted to work outside the home felt that alternative child care arrangements could not be made (Dickinson, 1975). The percentage might well be higher if all mothers were asked this question, since wanting to work outside the home may be a consequence in large part of feeling suitable child care would be available.

Another relevant subgroup is women who want to return to work soon after their child is born and can arrange child care, but are not given the opportunity to return to their former job (if they had one) and cannot find employment. That this may be quite prevalent is suggested by the fact that the unemployment rate for wives with children under 3 was 13.8 percent in March 1976 (U.S. Department of Labor, 1977). How do these women compare in their fertility behavior with employed or other non-employed women? These questions are of theoretical as well as practical importance, because they test whether it is one's orientation to work or work per se that influences fertility. (It would, of course, be relevant to differentiate part-time and full-time employment in such an analysis and control for background factors.)

The type of child care available is also a relevant issue. Stycos and Weller (1967) have hypothesized that it is the degree of compatibility of childcare arrangements with women's market work that influences the relationship between female employment and fertility:

> Where the roles of mother and worker are entirely *compatible*, we should expect little relation between labor force status and fertility. The less the cost in transferring childbearing [sic] tasks to others or in incorporating them with the job, the greater the compatibility...
> Where the roles are relatively *incompatible*, there should be a relation between fertility and employment but its degree and nature would be to a large extent fashioned by the degree to which efficient contraceptive technology is available (Stycos and Weller, 1967: 215,216).

These hypotheses assume that there is a similar number of children desired among all women, both in and out of the labor force, and that only when the market work is made incompatible with childrearing (not childbearing!) are less children desired. But it has also been argued that employment or the desire for employment may *create* a desire for fewer children (or no children) even if having children is *compatible* with working; that is, alternative satisfactions to those derived from children may be provided by employment. Blake, for example, states that

> ... employment is a means of introducing into women's lives the subjective awareness of opportunity costs involved in childbearing [sic] -- an awareness that traditional feminine roles and activities are well designed to circumvent (Blake, 1965:62).

To the extent, then, that satisfactory child care is made available to women at reasonable cost, one might expect such compatibility to *discourage* fertility. Strober has argued

> ... the option to work in the market without interruption may well induce girls (and women) to invest more heavily in themselves. And increases in educational investment would probably decrease fertility by changing tastes in at least two ways -- by changing the quantity-quality trade-off for children and by encouraging labor force participation (Stober, 1975: 358,359).

The absence of any data to directly test whether child care inhibits or enhances fertility is surprising, given its policy relevance. Indeed, Reddaway (1939) argued, at a time when depopulation in Western Europe was feared, that it would be a good policy to provide child care so as to reduce the "inconvenience" of a family; this would lead to more births. The U.S. Commission on Population Growth (1972), on the other hand, raised the possibility that child care may have a negative impact on fertility, as did a recent Brookings Institution report (Rivlin, 1972). Both positions are taken in the absence of data.

Much of the research on child care focuses on the types of arrangements that are made (Lajewski, 1959; Low and Spindler, 1968; Ruderman, 1968; Westinghouse Learning Corporation, 1971; Waite, Shortlidge, and Suter, 1974; Duncan and Hill, 1975; Lave and Angrist, 1974, Kurz, Robins, and Spiegelman, 1975; U.S. Department of Health, Education and Welfare, 1976; Shortlidge Brito, 1977).* A general finding is that children of employed mothers are cared for mostly by relatives, neighbors and babysitters, and that such care is much cheaper than licensed institutionalized arrangements such as nursery school and day care centers. Without informal low-cost arrangements, many women would not consider it economically feasible to work.** There is evidence that the presence of non-employed female relatives in the home is associated with relatively high employment rates among women with young children (Sweet, 1970; Waldman and Gover, 1971). Such families, however, constituted only 4.8 percent of all families in 1970 with children under 6

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* For a review of findings from the major studies, see Woolsey and Nightingale, 1977. There is also a considerable body of literature on child development and administrative aspects of non-familial child care, which goes beyond the focus in this paper.

** Child care is typically viewed as a means of facilitating female, not male, employment, and the costs relative to earned income are related to her salary, not the child's father. This perspective may well change in the near future.

(Waldman and Gover, 1971). Ditmore and Prosser (1973) have argued that, for low-income mothers, the expansion of child care facilities would increase the number of women in the labor force as well as the hours worked among the currently employed. Economists have also considered the cost of non-familial child care arrangements in relations to demand (Steiner, 1971; Heckman, 1974; Duncan and Hill, 1975; Kurz, Robins, and Spiegelman, 1975; Strober, 1975). While there has been some consideration of the cost to the government of broadening the child care deduction (Greenwald and Martin, 1974), there has been no assessment of the effect ~~that~~the recent tax credit for child care has on demand.

The availability and cost of certain types of child care may affect employment, but do these factors also affect fertility? Is the anticipated or actual use of relatives at little or no cost more conducive to fertility than other modes of child care? We do not know. It is particularly relevant to ask whether the level of participation of fathers in childrearing tasks is associated with women's birthspacing and family size desires. With greater participation of women with young children in the labor force, there may well be greater pressure for men to assist more with childrearing as well as household tasks. Will men's family size desires lessen if greater participation in such activities is expected of them? Will men increasingly view it in their self-interest to support the expansion and improvement of intsitutional child care arrangements? Would an increase in their child-care responsibilities influence their labor force participation, especially when their children are young? Unfortunately, because of differences between samples, we cannot assess the trend over time in paternal child care. In addition to the need for such comparable descriptive data, there is a need for analytic studies based on interviews from men that would relate their child care attitudes and behavior to the timing and number of children they have and to their employment (as well as their wive's).

Although we have been focusing on child care as an intervening factor affecting the relationship between female employment and fertility, the pronatalist thesis about child care could be tested by studying non-employed women. Do women who send their preschool children to a nursery school or child care center want or have more children than other non-employed women of similar education? How do women utilize this child-free time, and do such activities offset any positive effect child care may have on fertility?

Childrearing and Welfare

It is not the purpose of this paper to discuss whether women with young children should or should not be full-time childrearers. Instead, we have been speculating about some of the consequences for women's achievements outside the home when other adults play a greater role in childrearing, and have been suggesting areas for future research. One area for which there are many value judgments but little data concerns welfare mothers: What are the consequences for women in poverty (and their children) if the state subsidizes maternal childrearing rather than providing alternative child care arrangements so that the mother may work? What would the consequences be to all family members (including men) if absent fathers had to choose between supporting their children or rearing them -- i.e., desertion was no longer a feasible option?

The research on welfare mothers has been primarily concerned with determinants of welfare rather than consequences. These analyses are generally ecological, using states or SMSA's as statistical units and relating characteristics of these units to AFDC payments in these areas. In this fashion, Winegarden (1973) has concluded that neither the size of the welfare grant nor its rate of increase influences the growth rate of the AFDC population. On the other hand, Honig (1974) has argued that both "female headship" rates and AFDC recipient rates are significantly affected by the relative size of AFDC payments; and Garfinkel and Orr (1974) conclude that economic parameters in the AFDC program substantially affect the supply of AFDC beneficiary mothers.

Underlying the issue of whether the size of welfare grants affects participation in AFDC is concern as to whether or not recipients would otherwise work. Are welfare mothers employable? Studies that explore their background characteristics suggest that they are (Levinson, 1970; Burnside, 1971). Levinson's study shows that for both those of high and low employment potential, the majority indicated that poor availability of day care was a barrier (an additional factor was dissatisfaction with day care). Shea (1973) analyzed responses to a hypothethical job offer and found no difference in the proportions answering affirmatively by potential eligibility for a family assistance payment. He also found little evidence that greater subsidization of institutional child-care arrangements would lead to increased labor force participation; there was considerable reliance on relatives for child care. (One might also question the employability of the relatives and whether this supply will continue.) Economists have considered whether it is more costly to provide child care and job training than to pay AFDC allowances. Based on a computer simulation, Husby (1974) has argued that AFDC payments are much less costly. This may be true in the short run. But child care and job training are temporary, and the consequences for employment, self-sufficiency, and perhaps subsequent marriage as well, may be long-term. Also, as Strober (1975:366) has noted: "If potential AFDC mothers grow up knowing that they will one day utilize child care systems, they may well increase their level of education, make more appropriate vocational decisions, and thus be less likely to require AFDC." Moreover, as previously suggested, women may have fewer children if they are employed than if they are at home full-time. In other words, there might be more children ultimately to support if low-income women are receiving public assistance than if they are working outside the home.

This perspective is somewhat different from the thesis that public assistance per se creates the desire for more children. The monetary gain for having an additional child is considered an incentive (Sklar and Berkov, 1974), but the additional childrearing burden is not viewed as a disincentive. The hypotheses that fertility will be higher when and where payments are higher has not been supported (Cain, 1973; Winegarden, 1974; Moore and Caldwell, 1977). We know that poor women have more children than women with above poverty level family income (Presser and Salsberg, 1975), but is there a difference in fertility behavior among low-income women between those who receive public assistance and those who do not? The few studies of this issue suggest a negative answer (Placek and Hendershot, 1974; Polgar and Hiday, 1975). Moreover, there is evidence that among black unmarried mothers, those receiving welfare have lower fertility desires than other low-income women (Presser and Salsberg, 1975). Since there is considerable flow on and off public assistance, a longitudinal study that relates this flow to the timing and number of births would be revealing.

Research and Social Policy

The research issues that have been raised here not only reflect current trends but anticipate future ones as well. It is the writer's view that the employment rates of mothers with young children will continue to rise, that small families are here to stay for at least the next decade or so, that children increasingly will be reared in one parent households, and that there will be increasing pressure for fathers and/or the state to assist more with childrearing. Positive response to such pressure will not necessarily enhance women's status vis-a-vis men, since that would depend on changes in structural opportunities and the extent to which housekeeping and childrearing after work hours are shared by men and women. Also relevant would be changes in the life cycle sequencing of education, work, and leisure, and the extent to which work scheduling innovations are adopted -- such as flexitime, 4-day 40 hour work weeks, unpaid leaves of absence, extended vacations, sabbatical programs, and job rotation (Best and Stern, 1977). Providng such job flexibility to men and women might greatly facilitate their sharing of both childrearing and financial responsibilities.

Whether we approve of current trends or not, their implications for social policy need to be studied. Policy makers, in turn, need to adapt their proposed policies to these changes or their efforts will have minimal effect. Recent proposals to strengthen the family through welfare reform are a case in point. Policy that would undoubtedly lead to giving favored treatment of male employment and that views women's place preferably in the home and preferably married is suggested in excerpts from a memo of March 14, 1977 by Arnold Packer, Assistant Secretary of Labor, to F. Ray Marshall, Secretary of Labor (as quoted in Women's Washington Representative, June 12, 1977):

> ...One can think of the traditional American family structure with two parents and children in which the family head goes out to work and makes enough of a living to keep the family together. The major thrust of any program ought to be to support this as the predominant situation for Americans. Secondly, for

> families in which there are small children and only one parent, there should be enough support for those families to live a dignified life. The incentives should be arranged so that individuals prefer the two-parent arrangement. The earnings at work should be sufficiently greater than the dole on welfare to encourage families to stay together or to encourage women who are single parents to remarry. Meeting these objectives means providing jobs and/or training to family heads who are unemployed and earnings subsidies to working poor families.
>
> ...The policy conclusion is to target the public service jobs on families and not on individuals. None of this is anti-feminist. It could be the woman in the family who takes the job. Moreover, job availability provides enough financial independence for a woman to leave a bad marriage situation and know that she can make a living on her own. But for most cases, it is important to provide the male head of the family with the opportunity to work.

The views of Secretary Marshall are similar to those of his Assistant Secretary. On May 18, 1977, before the National Conference on Social Welfare, he made the following statement (as quoted in Women's Washington Representative, June 12, 1977):

> ...For many years, those who opposed a work requirement to welfare made the obvious point that the bulk of those people receiving welfare benefits should not be required to work. These were children and mothers with very young children. This perception is correct and it is a perception that is also an integral part of President Carter's welfare reform plan. Most people on welfare are not able to work and would not be expected to.

Can we make such statements on the basis of existing knowledge? What further research is needed?

The issues that have been raised here make the case for examining not only trends in childrearing, work and welfare, but the complex interrelationships between these events. Longitudinal surveys of both young men and young women that ask comparable questions on these topics and consider long-term as well as short term consequences are badly needed.

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Events as Units of Analysis in Life History Studies

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Events as Units of Analysis in Life History Studies[+]

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In the last two decades, many distinct branches of the social sciences have moved toward the study of sequences of events, activities, and statuses experienced by persons or aggregates of persons over a span of time. The specific topics and theoretical problems now being investigated by applying such data are so varied that it is difficult to coin a single name appropriate for all of them. They range from those covering relatively brief time spans - a day, a week, a few months - to those covering the entire life span of a cohort. A full list might include topics from such diverse fields as experimental and development psychology, political science, manpower studies, demography, medicine, social psychology, and sociology. But common to all of them is the goal of characterizing individuals or, more properly, populations by a series of variables, identified as to time, duration, and sequence.

While the remainder of this paper will be limited to only a few of this great range of problems, many of the remarks made here undoubtedly are germane to the entire set. This is none the least so with respect to the first generalization I want to make: that our capacity for collecting and processing rich and detailed information on sequences of events in the lives of persons, has outstripped available concepts and theories for organizing, synthesizing and understanding these vast data assemblages. There are exceptions to this assertion, but on the whole, those of us who use standardized questionnaires concerning sequences of events, activities or statuses in the lives of adults have little other than such blanket concepts as careers, life cycles, or life histories to guide us in the use of our data.

[+] See acknowledgements

This brings me to my second point. In the absence of adequate theory, it is surely the most appropriate research strategy not to foreclose interesting lines of investigation by premature data reduction. There is a real danger of making such reductions, that is of "tidying up" and making neater the full array of data from such investigations, if one fails to be aware of the fact that sequences of variables over time have a conceptual and logical structure different from that of static information. It is precisely the idea that such sequences cannot and should not be reduced to the same structure as that of static variables which forms the core of the following remarks.

While I shall here draw on the experience of my colleagues and myself at the Institute of Applied Social Research (INAS) Oslo in our study of the occupational and other careers of three cohorts of males, the lessons we have learned can be applied to other studies, such as the National Longitudinal Survey. Our data were collected in one long interview, conducted when the men were 50, 40 or 30 years of age, and consisted in part of retrospective material concerning the men's activities in such spheres as work, schooling, marriage and children, household composition, place of residence, housing, and health since the age of fourteen. In all, we recorded nearly 3,500 such life histories.

It was our aim in this study to follow the general prescriptions given above, and to treat the biographical data in a fashion corresponding to their own intrinsic structure. The Johns Hopkins occupational history study (Blum, Karweit and Sørensen 1969, Karweit 1973) served as something of a model for our own in this respect, and much of what we have done is an elaboration and particular adaptation of the basic strategy developed by that research team.

Perhaps the best place to start is with the banal observation that two people may have been born on the same day and yet vary considerably in how eventful their lives have been, the one having experienced more things than the other, in one or several spheres of life. This is so a fundamental a type of variation in people's careers that provision must be made for incorporating it into the scheme devised for collecting and recording data. The basic principle resulting from this idea is that of devising a data matrix such that every event has the same likelihood of being registered as every other, and that events, however we choose to define them, become one of the two basic units of analysis, the other being the person. While we are accustomed to using data to compare persons, in this type of research we should also use data to compare events, both within (so to speak) and between persons. More than that, we should be able to carry out analyses whereby we subject information on events to a number of arithmetic and logical operations so that we can, in the most serious sense, play with the data on events until they take on the character of a synthesis of the life course of the persons to whom they have occured. It is only if we have as much freedom as possible to do this that genuine progress will be made in concept and theory formation.

How then, did we set up event matrices and carry out this kind of operation?

It may be well to begin by explaining how the life history interviews were conducted and recorded. Building on the experience of the Johns Hopkins study, we furnished the interviewers with an interview guide in the form of a log book, with space for time down the vertical axis, and for activities across the horizontal. For each age cohort, the log book began with the calendar year when the men were 14 years of age. The first activity we asked about was the man's place of residence. Every time he moved to a new place, the information was recorded down the vertical axis at the point corresponding to the month and year when the move occurred.

The next section of the interview concerned formal as well as informal schooling. The same procedure was followed, and in this case, we asked three or four question about each bout of schooling. Then came an even longer list of questions about each job, including of course the date when each job began and ended.

It is almost certainly the case that no two of the 3,500 men we interviewed had exactly the same pattern of entries in their log books with regard to when their various activities began and ended. As Nancy Karweit points out in her article "Storage and Retrieval of Life History Data" (Karweit 1973), the only way to store log book data in conventional fixed format is by constructing a data matrix for each respondent whose size is equal to the product of the number of activities or, as we call them life spheres, times the number of questions asked about each of these, times the number of months (or whatever the smallest time unit) covered in the interview. In our study, we asked in all 148 questions over the twelve life spheres in the study, and the log book spanned over 432 months, so the size of the data matrix for each man would have been some 64,000 entries per man. In fact, we recorded an average of only 815 entries per man, so that only 1.3% of the allocated storage would have been used for data of any informational value. The remaining 99% of the entries would consist of either blanks, when the man was doing nothing in a given sphere (not going to school, not ill, etc.) or when he was doing the same thing (holding the same job, being married to the same wife) for months and years at a stretch.

Karweit reports on the Johns Hopkins solution to this problem. Abandoning the use of a data matrix in fixed format, where the location of an entry defines both the time reference (month) and the item of information, they instead constructed a unique data matrix for each person which was no bigger than that required to store the information pertinent to his life history. Each person's record begins with an index, or directory, showing how many events in each life sphere were recorded for that person, and giving the storage location of each event. This makes it possible to find any piece of information about any event, even though that information is not located in exactly the same place for each person. To be sure, one must add the beginning and ending dates to the entries for each event, since these are no longer given by the location. But this adds relatively litte space to the data matrix, compared with the space saved by this method.

In our Norwegian investigation, we have solved the problem in a different way - in fact, in such a way as to combine rectangularity or fixed format, with economy. Our solution - let us call it the Oslo solution - is to give up any attempt to record all of the data for one person in a single file or record, and instead to organize the data in separate event-level files, one for each of the (twelve) life spheres covered in the study.[**] Each such file is in fixed format, eliminating the necessity to provide an index or directory of its contents. And each life sphere file contains no more and no less than all of the events registered in that life sphere, no matter whether there were few or many such events, and no matter whether these were spread over few or many persons.

Before giving further details of the Oslo solution, it may be well to compare the three storage methods pictorially. This is done in Chart 1.

The first figure in Chart 1 corresponds to the conventional fixed format storage method. Note that the true information about the person's life history stands out as small "islands" of data in between large reaches of either blanks or repetitions. At the price of such wastage, one gains only a simple way of knowing what is stored where.

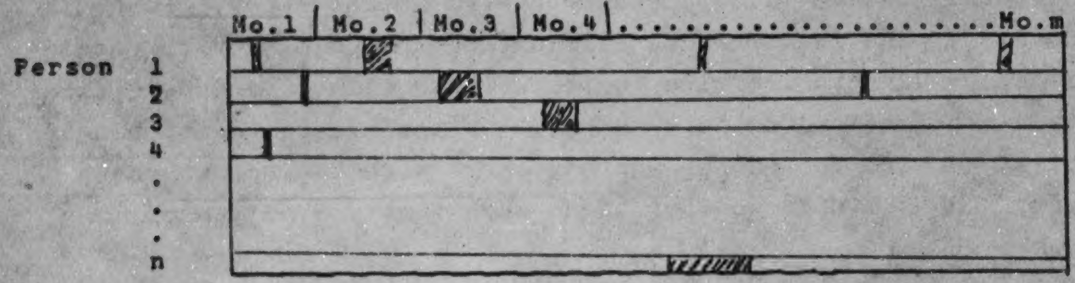
The second figure represents the method proposed by Karweit in connection with the Hopkins study. The data matrix is again organized at the level of persons, but requires no more storage than necessary to record the varying numbers of events for each person and to index the locations of person-events.

The third figure illustrates the principles used in the Oslo method. Note that we have turned the data matrix on its head, by organizing it according to events within each life sphere, and not by persons. All data can therefore be stored in fixed format. Since no index is required, this method saves not only storage of such an index, but also programming of the procedure required to retrieve data in variable locations.

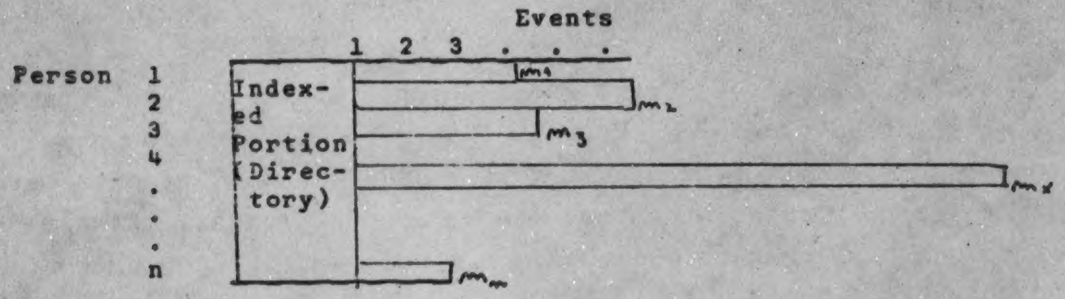
CHART 1

Three Methods for Storing Life History Data

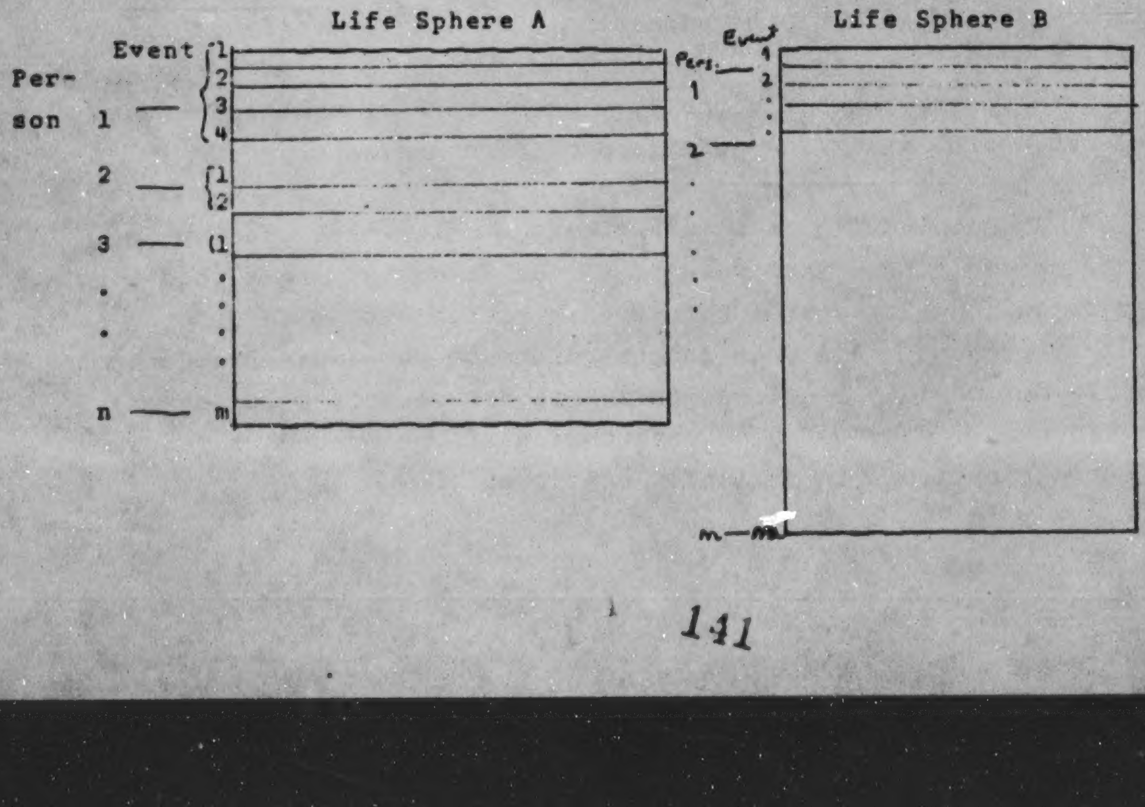
1) Conventional fixed format at the level of persons


Mo.1
Mo.2
Mo.3
Mo.4
Mo.m
Person
1
2
3
4
n

2) Indexed variable format at the level of persons (Karweit 1973)


Events
1 2 3 . . .
Person
1
2
3
4
n
Indexed Portion (Directory)
m1
m2
m3
m4
mn

3) Fixed format at the level of events (Oslo solution)


Life Sphere A
Event
Person
1
1
2
3
4
2
1
2
3
1
n
m
Life Sphere B
Event
Pers.
1
1
2
2
m—m

Perhaps the greatest advantage of the Oslo method is a consideration of which we were not aware when we decided to use it. After several years of analyzing these data, we have discovered that we rarely if ever use, in a given piece of analysis, more than two life spheres at a time. Some of the most frequent combinations are schooling and work, illness and work, marriage and household composition, schooling and place of residence. To be sure, we often combine these with so-called background data - and how we do this is explained below. But the important point is that we have saved a very large amount of computer time by not having to run through each person's life history over all of the life spheres, when in practice we want to read data from only one or two life spheres. This is a lesson which probably applies to many large-scale all-purpose studies.

Further details on this Oslo solution are as follows:

First, we divided our data into a number of life spheres, eleven in all, plus a twelfth to be discussed below. Typical life spheres were work, schooling, residence, health, and family formation. For each life sphere, a separate and unique data file was constructed. The file for a given life sphere is divided into records for each event within the given life sphere for each person. The events were so sorted that all events for the same person occur after one another in a calendar time sequence.

Some further important principles in the data structure are as follows. If a person had no life history at all in a given sphere, he was not included in the data file for that life sphere. This follows from the fact that events, not persons, are the level at which the life sphere files are organized. So the life sphere files contain data for varying numbers of persons.

The number of events varies from zero (see above) to a maximum that varies both between life spheres and, for a given life sphere, between persons.

Each event record has a standard format within a given life sphere. The event records from one life sphere to another are not all of the same length. The data on all the event records follows this sequence:

1) Life sphere number.
2) Year of birth of person to whom event occurred.
3) Unique person number.
4) Event number. The first event (first place of residence, first job, school attended, marriage, illness, etc.) for each person is given the number 001, the second 002, and so on.
5) The month and year when the event began.
6) The month and year when the event ended.

7) A simple yes/no code for whether the given event was the last event for that person in the given life sphere.
8) Description of the event. This descriptive material is standardized for each life sphere, but varies in content and in length across life spheres.

The event records within a life sphere are not in all cases continuous over time. In other words, the month and year when a given event ended need not coincide with the month and year when the next event for the same person began. And of course the number of life spheres for which events are recorded as having overlapped partly or fully in time for a person may also vary. For example, we have recorded up to two coterminous jobs for the same person, and he may also have been attending school at the same time. Finally, we constructed a kind of summary of all the event records for each person. Here, the idea was to make a single continuous running record of the men's lives, selecting what appeared to be his main activity for the entire course of time covered by the interview, such that no more and no less than one activity - including "unknown" - was recorded for all periods of time. This was a deliberate reduction of the data, since for some important types of analysis it was sufficient to know whether a man was working, attending school, unemployed, ill, on a long vacation, or that a given portion of his time was unaccounted for. This was the twelfth of the event files.

Tables 1 and 2 show the dimensions of the files. In all, we recorded over 190,000 events for the 3,479 men interviewed, for an average of 55 events per man. The maximum member of events summed over all life spheres was 653. Table 2 gives further details on the size of the separate life sphere files.

In addition, we created one file of background data, attitude data, and other information in a conventional fixed format at the level of the person. Other than this, practically speaking all information about persons had to be reconstructed by generating new variables from the raw data on events. This meant that we had to be able to link together information about (a) separate events within one and the same life sphere, (b) events from two or more life spheres, and (c) events and persons. Chart 2 gives a classification of the types of data retrieval carried out and illustrates each type with examples of output, either at the level of persons or of events. The first example of output consists of characterizing each man's occupational history by the number of jobs he has held. In practice, this was done by testing for the highest event number (see pt. 4 in the sequence on page 7) for all event records on the occupational life sphere file. It could also be done by retrieving the event number corresponding to the event coded as the last event on the job history (see pt. 7 in the sequence on page 8). If we wanted to generate the number of jobs held between specified ages or calendar years, this would be done by testing the beginning and ending dates for each job event (see pts. 5 and 6) as to whether they were before during, or after the specified dates, and summing the number which met the given condition. (Since year of birth is on every event record, age and calendar time are in one - to - one correspondence.)

The second example, "diagnosis for illness of longest duration", is produced by searching the health history file for each man and comparing each record as to the duration of the event, i.e., the difference in time between beginning and ending dates. This illustrates what Karweit calls "contingent retrieval", i.e. retrieving information about particular events which meet specified conditions, such as their position in a sequence of events (first, last event), their position relative to calendar time or age, or their occurrence or duration relative to other events (before, during, after, longest, shortest). Both of these examples refer to output at the level of persons. In the second column of the chart, some examples are given of output at the level of events. Karweit points out that one should be able to rearrange the data on life history files so as to carry out analysis not only for persons, but for other units as well. Her examples of such other units are transitions, i.e., pairs of events adjacent in time, and nth events, such as first periods of higher

CHART 2

Types of Retrieval Operations, according to Level of Raw Data and Level of Generated Output

Level of Raw Data	Output at level of: Persons	Output at level of: Events
A. Events in One Life Sphere	1) number of jobs held 2) diagnosis for illness of longest duration 3) age at beginning last period of part - time schooling	1) number of job transitions when wages went up, down, or remained the same 2) man years of unpaid family work, by age 3) mean prestige score of all jobs held between specified calendar dates
B. Events in One Life Sphere and Personal Attributes	1) age at completing highest or other specified level of education, by place of birth 2) (for farmers' sons) sibling rank, time spent in unpaid family work, and whether/or when man became farm owner	1) number of job shifts to higher prestige jobs, by father's socio-economic status
C. Two or more Life Spheres	1) whether first marriage occured before, during, or after last period of full-time education	1) man years spent in different types of households, by concurrent marital status 2) hours of work in first job after all periods of illness

education, third jobs, last marriages, and the like. (Karweit 1973, p.47). What seems to be the common factor in all such cases is that the units of analysis are, in one sense or another, events, and I have tried to exemplify that in no case can one reduce (or rather, aggregate) such event output unambiguously to the level of persons. The examples on the right side of Chart 2 refer either to shifts, to transitions, or to persons-weighted-by-durations - that is, man years (or months). We have carried out a great deal of interesting analysis of how the men we interviewed distributed their time over periods of up to 36 years, centering on the variable percentage of man years devoted to work, schooling, illness, unemployment, and the like. (See Skrede 1976, Ellegaard 1976). In form, this analysis resembles time budget studies of how people use the hours of a day or a week.

Note in Chart 2 that all of these types of output can in some cases be generated from the data on a single event file (section A). In other cases, one wants to link event file and person file data (section B), and in still others (section C) data from two or more event files, and of course two or more event files as well as person file data.

These linking operations are difficult, especially at different levels. In our study, there are many more records for events than there are for persons, and in addition we also have analyzed both event and person data at the still higher level of cohorts. To our knowledge, none of the standard survey program packages, such as SSPS or BMD, allow one easily both to link data from files at different levels and to carry out the contingent operations both within and between files. We have therefore taken on, and accomplished the arduous task of developing such a programming capability, some of the highlights of which are described in a technical appendix to this paper.

The last point in this paper is simply a reminder that the rather elaborate technology described here is only a means to the end of permitting us to investigate careers and life histories in a more adequate fashion than heretofore. The types of variables used in Chart 2 to illustrate the programming capabilities of the method we have devised, are also first steps to the further understanding of how people's lives develop and change. This is, to recall, the stage we have reached in this field. I hope that others share in the anticipation of the fruits of this effort.

Sept. 1977

TABLE 1

No. OF EVENT RECORDS ON LIFE SPHERE FILES

Life Sphere	Total no. of events	Average no. of events per person	Maximum no. of events
01 Main activity	47,825	13.75	115
02 Place of residence	30,650	8.81	136
03 Formal education	9,698	2.79	20
04 Informal education	1,613	0.46	7
05 Jobs and occupations	36,124	10.38	135
06 Second jobs	2,050	0.59	48
07 Marital status	6,466	1.86	8
08 Children in family of procreation	7,099	2.04	12
09 Household composition	45,002	12.94	140
10 Illness and accidents	3,003	0.86	15
11 Illness/accident which affected job	260	0.07	2
12 Receipt of public benefits or welfare	2,343	0.67	15
Total	192,133	55.23	653

N = 3479

TABLE 2

DIMENSIONS OF LIFE SPHERE FILES AND EVENT RECORDS

			No. of Items of Information about Events			
Life Sphere	(1) No. of Events	(2) No. of Persons	(3) Time and I.D. References	(4) Attributes of Events	(5) Sum	No. of Entries (1) x (5)
01 Main Activity	47,825	3,479	7	1	8	382,600
02 Place of residence	30,650	3,479	7	6	13	398,450
03 Formal education	9,698	2,686	7	13	20	193,960
04 Informal education	1,613	1,055	7	6	13	20,969
05 Jobs and occupations	36,124	3,478	7	40	47	1,697,828
06 Second jobs	2,050	762	7	11	18	36,900
07 Marital status	6,466	3,039	7	5	12	77,592
08 Children in family of procreation	7,099	2,783	7	18	25	177,475
09 Household composition	45,002	3,479	7	20	27	1,215,054
10 Illness and accidents	3,003	1,745	7	23	30	90,090
11 Illness which affected job	260	242	7	5	12	3,120
12 Receipt of public benefits or welfare	2,343	1,458	7	-	7	16,401
Total	192,133		84	148	232	4,310,439

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Skrede, Kari (1976), "Livssyklus, sosial likhet og sosial endring".

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Ekteskap, barn og husholdsammensetning	Notat Nr. 10
Yrkesaktivitet og sykelighet	Notat Nr. 11

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+
This paper is not only a collaborative effort of the two authors, but also reports on a method developed in Oslo for handling complex data structures in which a great many people played a major role. See below for further acknowledgments.

++
The decision to store the data of the Occupational History Study at the level of events, belongs in fact to the category of decisions which just happen by themselves. Originally, we committed ourselves only to coding the data for each life sphere separately, because it was practical to do so. The front material for each event (id. number, event number, both beginning and ending dates for each event) was recorded partly as control information. Kari Skrede, co-director of the Occupational History Study, deserves credit for designing the coding system and for its successful application. The coding structure became identical with the data storage structure in the following manner.

While the data were being coded, we took advantage of a visit to Oslo by Aage Bøttger Sørensen, then working on the Johns Hopkins project, to start planning the data retrieval system. Undoubtedly the coding structure influenced the direction which this work took, since the first group to work on this problem, consisting of Arne Pape and Odd Aunåen as well as Sørensen, proposed to develop programs in FORTRAN for linking and mixing data from separate life sphere files. When the coding was completed, Daniel Oksvold and Per Harald Jacobsen were the first programmers to try their hand at applying this idea by writing FORTRAN programs to generate new variables by combining data from several event files.

Concurrently with these developments, others in Oslo were improving a program package already coming into use in Oslo. This program, called DDPP (Discrete Data Programming Package) turned out to have capabilities (i.e., programs called MIX, FILE, and CALC) which suited the requirements of our data. When we made our needs known to the developers of DDPP, Arvid Amundsen and Peter Gjerull from this group completed the work done by our staff and implemented a new program, called GROUP, into the whole package which in turn is operative at the computer center at the University of Oslo.

In addition to all of the above, thanks are also due to the more recent members of our own programming staff, Erik Valevatn, Terje Enger, and Knut Holmquist. Working together with Sten-Erik Clausen, they have clearly demonstrated that any and all requests made by the research staff to generate complex analytic variables at the level of persons from variables at the level of events, can be handled routinely.

APPENDIX

DDPP and multi-level data files

DDPP is a statistical package for social science data, developed at the University of Oslo. Its functions can be divided into three main categories:

1) statistical analysis,
2) data modifications, and
3) file-handling.

The statistical part, which is not exceptional compared with other corresponding packages (e.g. SPSS or BMDP), will not be treated. The package has, however, a rather large capacity concerning data and file manipulations. A special facility of DDPP, which is the topic of this paper, is the capability to handle multi-level data files.

Programs for data and file manipulations

The four main programs covering these functions are:

FILE : This program allocates, opens, or releases data files.

MIX : The function of this program is to take variables from one data set and add them to another.

GROUP: The program aggregates data from a lower to a higher level. It has a number of functions, and a system for making logical statements.

CALC : This program offers possibilities for rather complex data manipulation, with statements very similar to FORTRAN. It is also very useful for complex aggregations.

Example 1 Input: one event file, output: one person file

Figure 1 shows the organization of an event file from the occupational history study in Oslo. The persons have a variable number of events, and they are sorted in increasing order in columns 1 through 6. Now we want to retrieve the following information: Number of job transitions when wages went up, down, or remained the same, distributed between subjects. This may be solved in DDPP in the following way.

Col. 1-4	Col. 5-6	Col. 7-10	Col. 11-14
PERS. ID.	EVENT NO.	INITIAL WAGES	FINAL WAGES
1001	01	4000	5000
1001	02	5000	6080
1001	03	6000	7000
1002	01	2500	3000
1002	02	3000	3200
.		.	.
.		.	.
.		.	.
.		.	.
.			
.			
.			
.			
3471	01	3500	3700
3471	02	3900	4200
3471	03	4200	4700
3471	04	5000	5200

Figure 1. Structure of an event matrix (wages).

```
*FILE
AUX,N=WAGES
OUT,N=RESULTS

*GROUP
P AUX=1-4, OUT=1-4
    R1=V7-10       $ Initial wage for an event
    B1=R1 GT R5    $ True if initial GT final wage for previous event
    B2=R1 EQ R5    $       "        EQ              "
    B3=R1 LT R5    $       "        LT              "
    R2=FREQ IF B1  $ No. of transitions if B1
    R3=FREQ IF B2  $       "              B2
    R4=FREQ IF B3  $       "              B3
    R5=V11-14      $ Final wage for an event
    X5-7=R2
    X8-10=R3       $ Output
    X11-13=R4      $
```

<u>A brief description of GROUP</u> [1]

The function of GROUP is to aggregate data from a lower level (e.g. persons) of analysis. The low and high level data have to be organized in separate files. The two files are linked to each other by a common variable (in our examples in columns 1-4). It is mandatory that the low level id. numbers contain the high level id.numbers, and that the units are sorted in the same increasing order (see Figure 2). The aggregated data may constitute a new file (example 1), or be added to an already existing high level file (example 2). The files have to be defined in the program FILE, according to the following rules:

INP : data on highest level (read)
AUX : data on lowest level (read)
OUT : data on highest level (write)

---

1) For an exhaustive description, see the DDPP manual. An English version will be published in january 1978. Further information may be obtained from: The EDP centre, University of Oslo, Box 1059, Blindern, Oslo 3, Norway.

The aggregated data are put in registers called R (see example 1), and the kind of aggregation is determined by the following operators:

FREQ : frequency summation
SUM : value summation
ACSQ : quadratic summation
TIME : time accumulation
EXTREME : min. and max. values
DATE : date retrieval
VALUE : value retrieval
CONST : constant

In addition, the operators may be attached to logical statements, using socalled true false B registers.

<u>Example 2</u> Input: one event file and one person file
Output: one person file

Data retrieval: Number of job shifts to higher prestige jobs distributed between the subjects, by father's socio-economic status (s.e.s.). In this case we have to retrieve data from two separate files, one low and one high level (see Fig. 2, p.5). DDPP can solve this problem in the following way:

```
+FILE
INP,N=PERSON-FILE
AUX,N=EVENT-FILE
OUT,N=RESULT-FILE
```

PERSON-FILE

COL. 1-4	COL. 5
PERS. ID	FATHERS SES
1001	5
1002	4
1003	1
1004	3
1005	6
1006	2
.	
.	
.	
.	
.	
.	
.	
3470	5
3471	3

EVENT-FILE

COL. 1-4	COL. 5-6	COL. 7
PERS. ID	EVENT. NO.	PRES-TIGE
1001	01	4
1001	02	4
1001	03	3
1001	04	2
1002	01	5
1002	02	5
1002	03	5
1003	01	3
3471	07	3
3471	08	2

Figure 2. The structure of one person and one event matrix, where matching is done via a common identification number.

```
+GROUP
P INP=1-4, AUX=1-4  $ Matching variables
   R1=V7            $ Present prestige
   B2=R1 LT R3      $ True if present prestige higher than previous
   R2=FREQ IF B2    $ No. of job shifts if B2
   R3=V7            $ Previous prestige
   X6-7=R2          $ Output
```

The RESULT-FILE will now be an input-file, containing the two variables father's s.e.s. and the number of job shifts to higher prestige jobs.

EXAMPLE 3 Input: Two event files
Output: Person file, via one of the event files

Data retrieval: Occupational title at the time of last marriage. Occupation and marriage are on two separate event files, as in Figure 3.

EXAMPLE 3 Input: Two event files
Output: Person file, via one of the event files

Data retrieval

EVENT FILE : MARRIAGE

COL. 1-4	COL. 5-6	COL. 7-10	COL. 11
PERS. ID	EVENT NO.	START TIME	CIVIL STATUS
1001	01	3501	1
1001	02	4112	2
1001	03	5801	3
1002	01	3501	1
1002	02	4702	2
1003	01	3501	1

EVENT FILE : MAINJOB

COL. 1-4	COL. 5-6	COL. 7-10	COL. 11-14	COL. 15-17
PERS. ID	EVENT NO.	START TIME	STOP TIME	OCC. TITLE
1001	01	3506	4701	296
1001	02	4701	5110	403
1001	03	5207	7111	411
1002	01	3901	4002	.
1002	02	4002	4304	.
1002	03	4304	4610	.
1062	04	4610	7111	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

Fig. 3: The structure of two event matrices. Matching is done via common identification number and convergence of timing of two events

```
+FILE
AUX,N=MARRIAGE (EVENTS)
OUT,N=HELP1    (PERSONS)
+GROUP
P AUX=1-4, OUT=1-4
B1=V11 EQ C2            $ TRUE IF MARRIED
R1=VALUE V7-10 IF B1    $ TIME FOR ENTRANCE (LAST) MARRIAGE
X6-9=R1                 $ OUTPUT

+FILE
INP,N=MAINJOB       (EVENTS)
AUX,N=HELP1         (PERSONS)
OUT,N=MAINJOBX      (EVENTS)
```

```
+MIX
P INP=1-4, AUX=1-4,R,D      $ R means that subjects on the INP-file
V18+=6-9                      but not on the AUX-(HELP 1)-file, i.e.,
                              never married,will be  omitted.

                              D means that all events with the same
                              values on the matching variable (1-4)
                              on the INP-file, get the same values
                              from the AUX-file.

                            $ The columns 6-9 (time of marriage)
                              from the AUX-file get the no. 18-21
                              on the new event file.


+FILE
AUX,N=MAINJOBX
OUT,N=RESULTS

+GROUP
P AUX=1-4,OUT=1-4
  B1=V18-21 LE V11-14       $ B3 TRUE IF DATE OF LAST
  B2=V18-21 GT V7-10        $ MARRIAGE IS WITHIN THIS
  B3=B1 AND B2              $ TIME PERIOD
  R1=VALUE V15-17 IF B3     $ OCC. TITLE IF B3
  R2=FREQ IF B3             $ R2=0 IF NOT WORKING
                            $ R2=1 IF WORKING

  B5=R2 EQ C0
  R3=C-11
  X6-8=R1                   $ OUTPUT: OCCUPATIONAL TITLE
  X6-8=R3 IF B5             $       : -11 IF NO OCCUPATION
```

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October 14-16, 1977

ON THE NEED FOR BETTER DATA ON THE INTERRELATED OR JOINT DECISIONS DURING ECONOMIC SOCIALIZATION

James N. Morgan
University of Michigan

Memoranda for SSRC Conference on
The National Longitudinal Surveys

James N. Morgan, Martha Hill,
and Arland Thornton
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ON THE NEED FOR BETTER DATA ON THE INTERRELATED OR JOINT DECISIONS DURING ECONOMIC SOCIALIZATION

Massive changes in birth rates, population, labor force participation, family composition, and the labor market combine to demand better understanding of the processes by which people enter and leave the labor market, sort themselves into particular jobs, job locations, residences, and families. Much progress has been made in studying separate aspects such as job search, unemployment, family planning, mate selection, and even the effects of programs and policies on the incentive to work. It is the argument of this paper that individual decisions in these areas are commonly joint decisions, with multiple objectives and constraints, and often need to be studied as such. A secondary argument is that while much can be learned from inferring cause and process from results we must also study the process of decisions and change as such.

There is accumulating evidence, for instance, that the differences in earnings between men and women, blacks and whites, cannot be explained by differences in education, training, or attachment to the labor force at an individual level. So we need to know how people get sorted into jobs that allow more or less training and advancement (the good jobs do not really cost anything in lower wages) or jobs that just pay more or less. Evidence also indicates that the first decade of work experience is crucial for determination of long-run earning prospects.[1]

Since much of that sorting takes place early in life, it happens when individuals are also searching for a satisfactory place to live and person to live with, and when that other person is also searching for satisfactory occupational and family arrangements. With such a complex search for several things, subject to various objectives and constraints, it seems unwise for the researcher to focus on any one of them without at least using the others as part of the explanation.

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[1] See Volume VI of Five Thousand American Families (forthcoming).

It is possible that the order in which the various decisions were made differs for people, or that the sequence is determined by the order in which attractive opportunities come along. For example, some individuals may first search for a good job, then for a partner, then both search for a job for the partner, then they search for a satisfactory place to live, and finally they make decisions about how many children to have. However, some may get married, then look for two jobs close together. Others may insist on moving to California, then finding a job, then a partner. But a stochastic model in which good opportunities of various kinds appear at rare and random intervals (and only to those with information and those unaffected by prejudice), might be closer to reality.

We can call the whole process of getting a job, finding a place to live. selecting a partner, and building a family economic socialization. The efficiency and fairness with which the process takes place is obviously important to society as well as to the individuals concerned. Vast waste of skill and talent and misplaced investment in training can occur if the process is inefficient. Additionally, the rapid rate of change in the job market plus greater demand for pairs of jobs by working partners further increase the need for attention to the sorting process. It is the process of economic socialization that we are primarily interested in, not complete information about each separate decision area. We are not concerned with the details of assortative mating, for example, but with its relation to other searches and choices and decisions about jobs, locations, and investment in further training.

Other Work on Joint Decisions

It is impossible to survey and summarize the extensive literature in several disciplines on occupational choice and mobility, geographic and residential mobility, assortative mating, family planning, and the demand for residential housing. Many empirical studies which have focused on one of these have used one or more of the other choices as part of the explanation, but few have focused directly on joint decisions about two or more at a time. In part this results from the inadequacy of the data available for such studies, but in part it reflects the failure of those designing studies in one choice-area to ask the questions about related choices.

A review of the literature on work and family (Rosabeth Moss Kanter's *Work and Family in the United States: A Critical Review and Agenda for Research and Policy*, Russell Sage, New York, 1977) calls for research on the interactions between the two. A study of geographic mobility using the Michigan Panel Study of Income Dynamics data shows that work aspects of both the husband and wife affect the geographic mobility of married couples. Using estimates of potential wages of husband and wife in each potential destination, the study concludes:

> . . . families not only move to areas where the potential increase in the family's earnings is maximized, but at the same time select those where the wife's contribution to that gain is largest. (p. 99)

A forthcoming paper by Daniel Weinberg ("Towards a Simultaneous Model of Intra-urban Household Mobility" which will appear in *Explorations in Economic Research*, NBER) treats decisions to move residence and workplace location as interrelated. The author makes use of a joint estimation procedure for dealing with "seemingly unrelated regressions" proposed by Zellner and Lee which is somewhere between letting each decision affect the other ignoring the related error terms, on the one hand, and constraining their jointness to be symmetrical as Nerlowe and Press have done, on the other. He finds the two are indeed interrelated.[3]

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[1] Julie DaVanzo. *Why Families Move*, R & D Monograph 48, U.S. Department of Labor, U.S.G.P.O., Washington, D.C., 1977 (with a useful bibliography).

[2] A. Zellner and T. H. Lee. "Joint Estimation of Relationships Involving Discrete Random Variables," *Econometrica* 33 (1965), 382-394; and Marc Nerlove and S. James Press. *Univariate and Multivariate Loglinear and Logistic Models*, Rand Corp., Santa Monica, California, 1973.

[3] See also R. Paul Duncan and Caroline Cummings Perrucci, "Dual Occupation Families and Migration," *American Sociological Review* 41 (April, 1976), 252-261; and Linda Waite and Ross Stolzenberg, "Intended Childbearing and Labor Force Participation of Young Women; Insights from Non-Recursive Models," *American Sociological Review* 41 (April, 1976), 235-252.

Some Preliminary Explorations on Existing Panel Data

Existing panel data (Parnes, Michigan) can be mined somewhat to examine the economic socialization process both by examining timing sequences and by using questions about why people moved or changed jobs. The younger Parnes panels focus on the right age spans for such analysis and will be useful when there are enough waves of data. Here we report some very crude but relevant data from the Michigan Panel.

Volume V of Five Thousand American Families (I.S.R., Ann Arbor, 1977), reports in Chapter 12 the pattern of correlations between different kinds of moves over a relatively long period (seven years). The four changes considered were:

changing or acquiring a spouse
changing or acquiring a job or retiring
changing residence
changing spouse's job (including starting or quitting)

Even taking account of possible spurious correlations with age (the young do more of everything), there remained evidence showing that one kind of change was directly associated with other changes. A check for higher order interactions (combinations of two changes affecting a third) also revealed few, though some were automatic (for example, the spouse's job changed automatically when the spouse was no longer the same person). But this analysis merely showed some relatedness and did not even get at timing, much less causation.

We might think it possible to untangle priorities and relations by the timing patterns of such choices. If people sometimes move in order to take a different job, perhaps the move should tend to follow the job change or coincide with it.

The attached charts present Panel Study information concerning the timing patterns of three major changes which could be interrelated--change of residence, job change by the household head, and family composition change. These charts allow observation of the extent to which these changes coincided in time. Each chart depicts the percentage of panel members undergoing a given change in a given year for the period 1969-1976. In every chart the Panel Study members are segregated on the basis of whether or not they underwent one of the other changes in 1972.[1] In each chart the upper curve pertains to panel study members undergoing the other change in 1972, and the lower curve represents those not undergoing that other change in 1972. If the two changes exactly coincided in time, the charts depicting the relationship between these two changes would show the solid curve peaking at 1972 and the dashed curve dipping at 1972. These charts are presented for those aged 25-40 in 1976 since the younger group was more likely to undergo all of these changes, but similar patterns appeared when the whole age range was included.

These charts indicate that moving tends to coincide with the household head changing jobs (Charts 1 and 2), and that family composition change tends to lead rather than lag residential change (Charts 3 and 4). The charts show no consistent relationship between family composition change and the household head changing jobs; although Chart 6 suggests that family composition change leads job change, Chart 5 suggests no relationship between the two across time.

These timing patterns suggest that some moves are caused by family composition change since the former tends to follow the latter. However, they do little to help disentangle the other relationships. For example, apparently many job changes entail moves and many moves entail job changes, but it is impossible to tell which causes which simply from timing patterns. And the relationship between job change and family composition change is even less

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[1] Similar results looking at those who did or did not make a change in 1973 are not given though they indicate that the particular year is not crucial.

Chart 1 % MOVING (AGED 25-40 IN 1976)

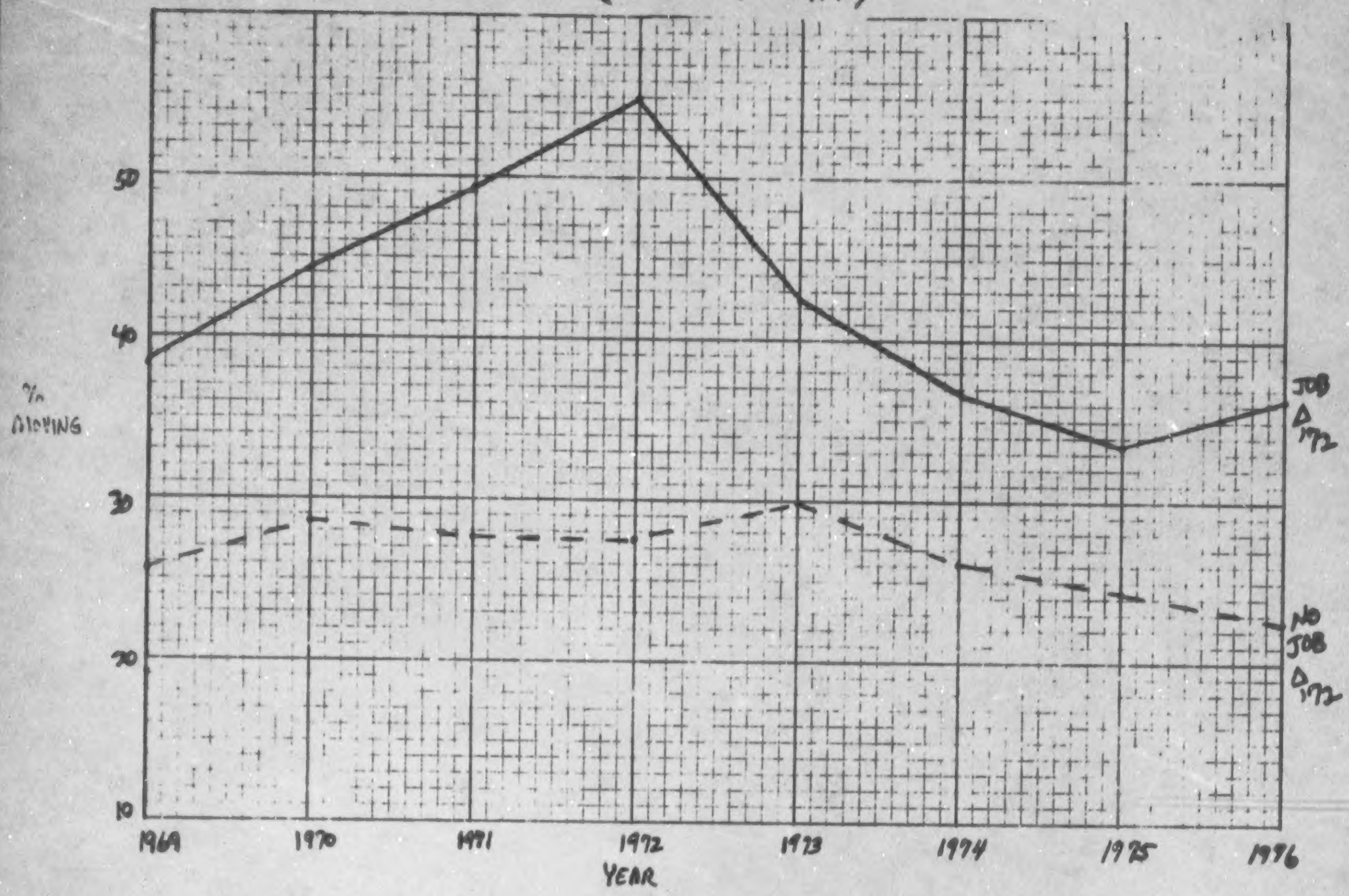


Chart 2 % WITH JOB CHANGE (AGED 25-40 IN 1976)

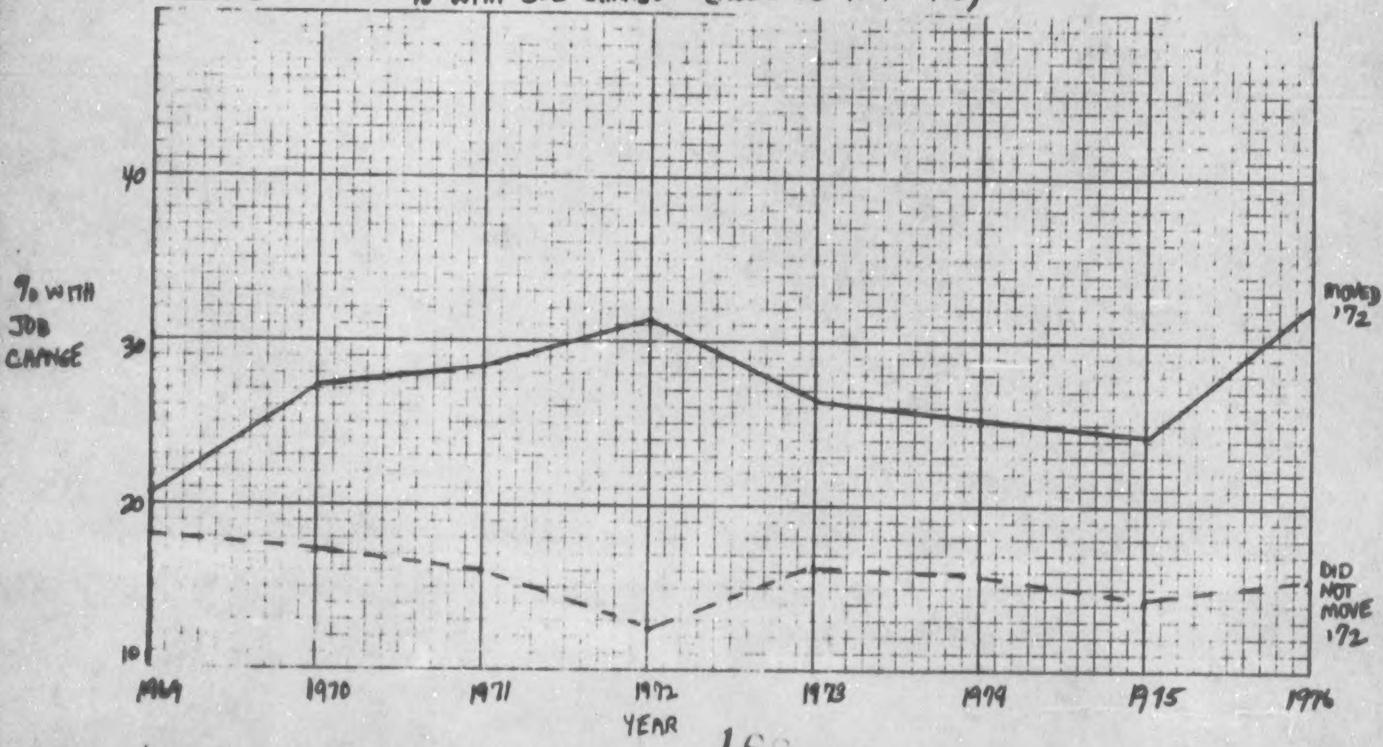


Chart 3 % MOVING (AGED 25-40 IN 1976)

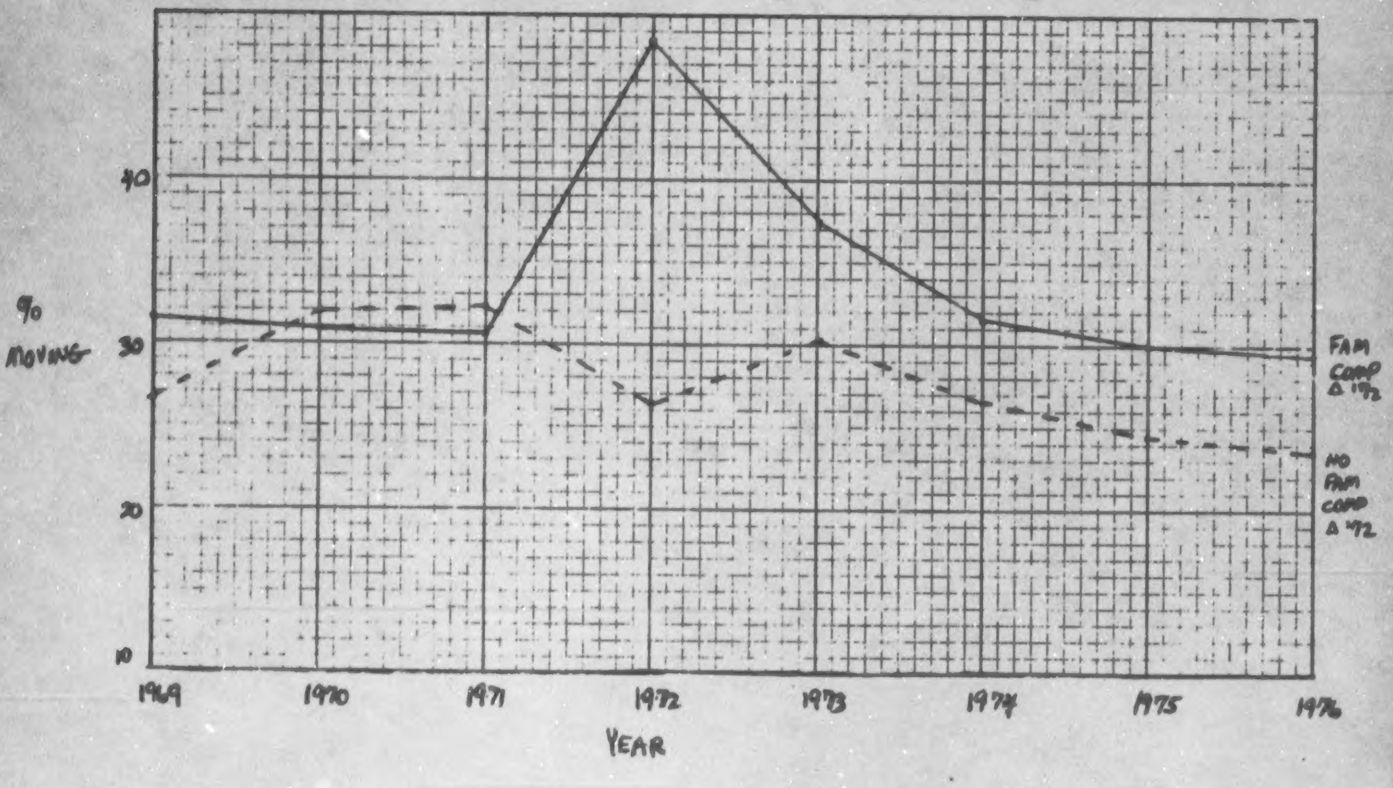


Chart 4 % with FAMILY COMPOSITION CHANGE (AGED 25-40 IN 1976)

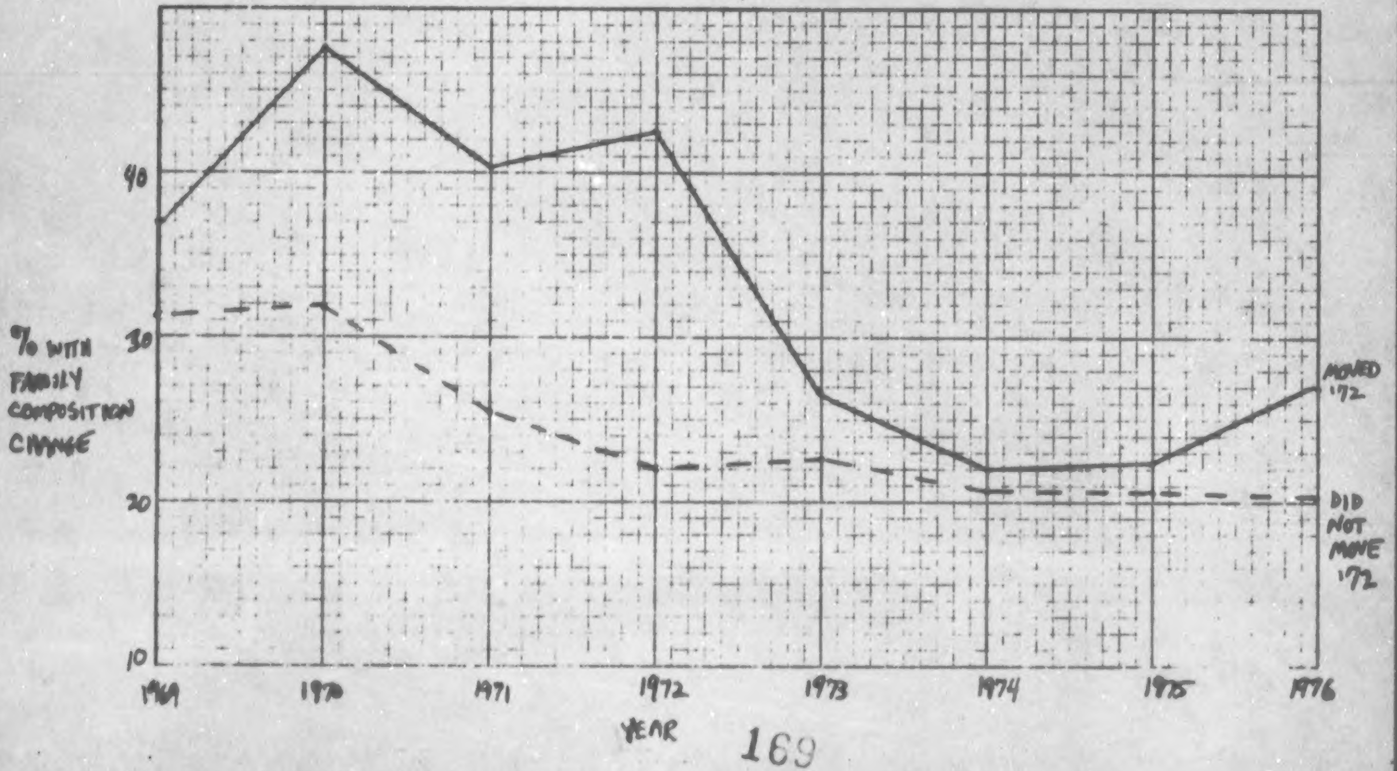


Chart 5 % with JOB CHANGE (AGED 25-40 IN 1976)

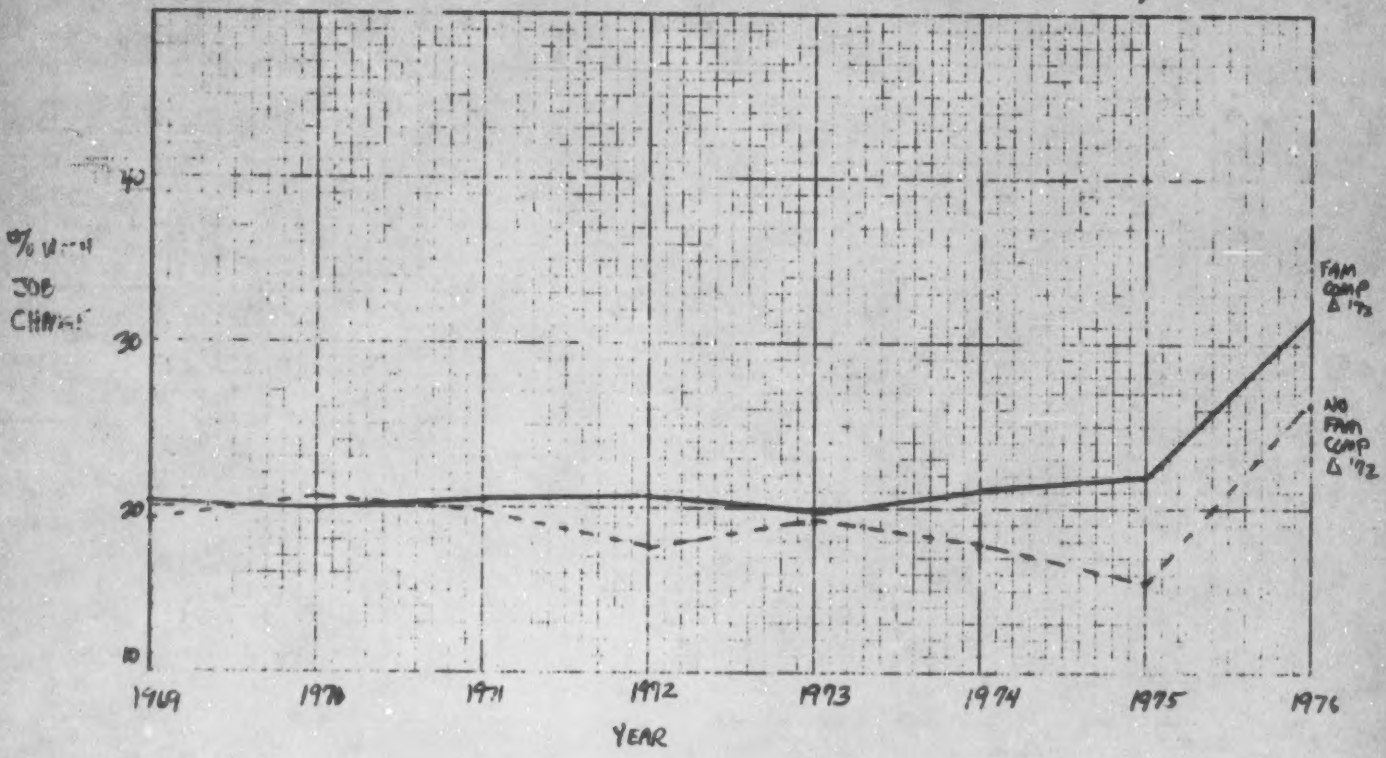
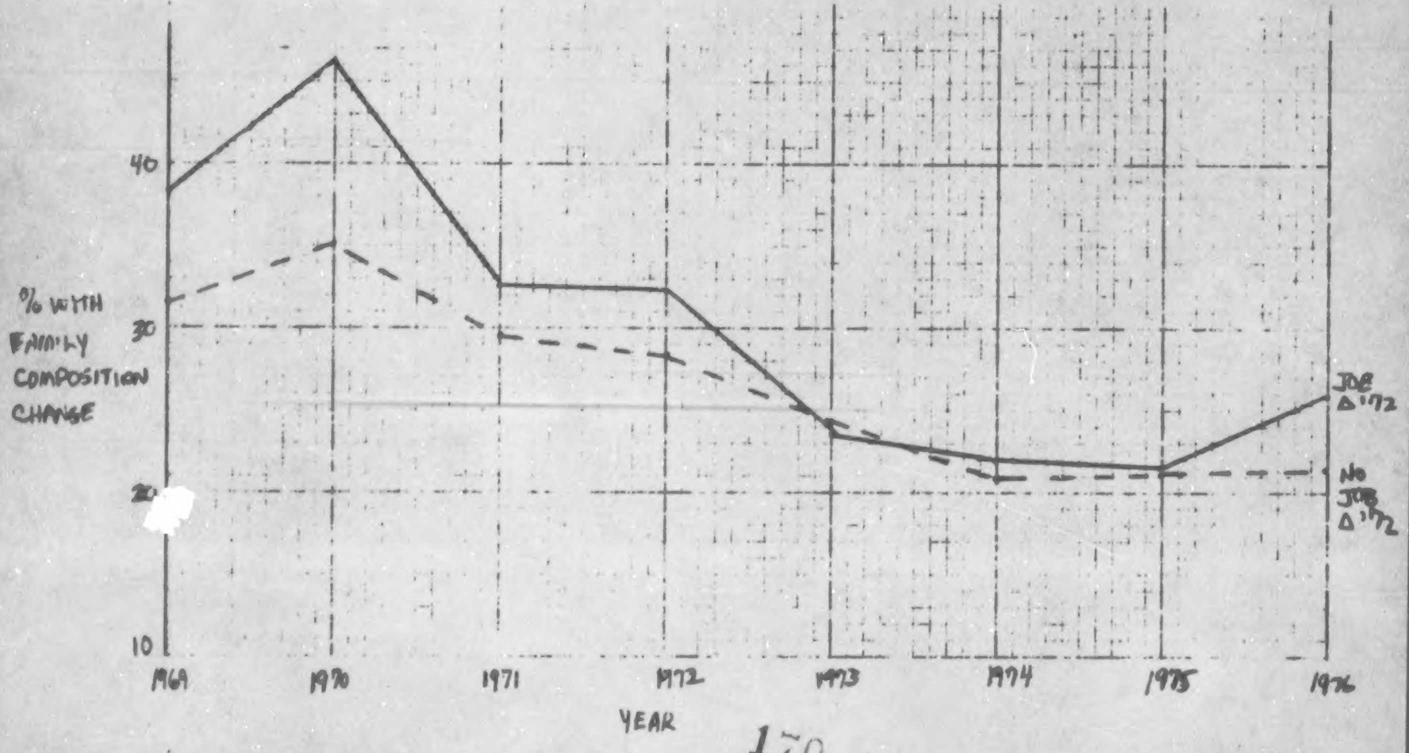


Chart 6 % WITH FAMILY COMPOSITION CHANGE (AGED 25-40 IN 1976)



clear because of no distinct time pattern.

Thus, if decisions are joint, but not in a way that results in clear leads or lags in timing, then the possibilities of inferring the causal process correctly even from panel data without asking for more information are slim. Elaborate econometric techniques to distinguish among alternative models would run into difficulty because the interrelatedness and timing patterns are not dramatic. It seems unlikely that going to finer timing within each year would improve the causal analysis much.

We did one more exploratory analysis focused on buying a home, since that one act seems to epitomize settling down. We regressed a number of factors simultaneously on (a) whether the family bought a house anytime from 1968 to early 1976, and (b) how many years ago the home owners of 1976 bought their houses. The factors were:

Age of youngest child in 1976

Family size in 1976

Age of head

Years since marriage

Income decile in 1975

Change in income decile position

Buying a home was dominantly affected by large increases in income, and done mostly by those in their 30s, and by those who had been married five years or more. The number of years since marriage was rather highly associated with the number of years since the house was purchased. But once again, such exercises reveal little of the process or the causation. The implication is that we need a study which asks directly about some of the concurrent choices and joint decisions. It is not true that earlier changes always determine later choices. Someone might:

want to marry someone living in another state, hence look for a job there and move when one is found, in which case the causal ordering reverses the time sequence if he or she gets a job, then moves, then marries. Or someone might move to a better neighborhood because he or she plans to start a family soon.

Data Collection Suggestions

The ideal vehicle for investigating the process of economic socialization is clearly a longitudinal study.[1] Traditionally, however, these studies have been used primarily to elicit people's attitudes, expectations, information, plans, and purposes beforehand as well as their reports on the occurrence and timing of decisions and events afterward and have attempted to infer causation and process through the investigation of timing sequences. It is our contention that asking the respondents to explain and interpret the processes and considerations determining their behavior would substantially increase our understanding of the relevant causal forces. It would allow the understanding of joint decisions as well as permitting the exploration of the impact of anticipated events on prior decisions. In addition, while such a longitudinal study would have to follow individuals, it would also need to secure information about, or even from, spouses and perhaps even employers in order to explore the impact of others on the decisions and events of the respondent's life.

There are, of course, several considerations which make it difficult to include questions of the type we are advocating on any particular panel study. Longitudinal studies are expensive and put severe limits on the amount of information that can be collected each time in order not to overburden respondents and keep the high response rate. Panel studies also require an extensive waiting period before the truly dynamic data are available. Furthermore, experience with questions of the type we are advocating is limited and extensive experimentation and pretesting would be required to develop the approaches which would supply the greatest payoff. Exploratory studies that can provide some information on the dynamics of economic socialization need to be considered.

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[1] Indeed, we have in mind the prospective panel studies of 14-24 year olds supported by the U.S. Labor Department and directed by the Center for Human Resources Research of Ohio State University (Herbert Parnes). A very small set of additional questions would dramatically expand the analysis possibilities of those panel data to cover the whole economic socialization process.

It would be well worth the investment to conduct some rather extensive preliminary cross-section studies of a retrospective nature. These studies would have substantive results in their own right and serve as a precursor to a panel study and as a guide to its design. Many of the decisions people make are sufficiently crucial, salient, and specific to them, so that their ordering and the major concomitant circumstances should be remembered for many years without substantial biases. Securing data from people of various ages about their experiences in finding a satisfactory job, partner, residence, and family size should make it possible to investigate whether differences between cohorts seem to be affected by historic period effects or by age.

We propose an inexpensive (relative to panel studies) small national survey that asked people of all ages to recall the period from school to their first relatively permanent acceptable job, including decisions about where to live and with whom. Memories of alternative opportunities will undoubtedly be deficient, but some information is certainly available about major possibilities that were rejected and even about what, if anything, dominated certain decisions. For example, most of us can remember how we found our jobs and, with some bias perhaps, what kind of efforts we put into getting information or seeking out alternative opportunities. We can probably even recall whether we tried some jobs for a while before deciding they were no good, or whether those short time jobs were always seen as fill-ins or temporary.

Since a national sample provides people of all ages, an inexpensive by-product or joint product would involve asking older people about the considerations and decisions leading to retirement. How much is the spouse's job, health, or other desires affecting decisions about when to retire or how much to work? Are desires about where to live affecting labor market attachment among older people whom we usually assume are settled, occupationally and geographically? Is the prospect of adequate retirement income changing people's notions about where they will go when they retire, as well as about when they will retire?

This proposed study would be quite different from the occupational histories that have been collected, or the family planning histories, or the residential mobility studies, in that it would focus on the full set of related decisions and their interrelations and priorities. While this might seem to make things much too complex, it might actually reveal simpler models of motivation and behavior into which everything fits. Certainly it is worth an investment both in its own right and as a way of suggesting possible additions to the longitudinal study that would vastly increase its value.

Close coordination between the cross-section study and the longitudinal study would be essential. Particularly if the timing becomes a problem, it may prove necessary to ask identical questions in the first wave of the panel and in the cross-section study, for instance on expectations about moving or marrying. For those few already married, questions about expected children and their timing are none too soon. The hypotheses about priorities and sequencing from the exploratory survey could then be tested against the more dynamic data from the panel study.

Some Specification of Details

The credibility of our assertion (that much of the interrelated process of decisions about work, marriage, location, residence, and children is accessible retrospectively) can be increased by spelling out the kinds of memory questions that could be asked in the cross-section study. The exact wording and sequence would of course be refined by extensive pretesting, so what follows is somewhere between detailed objectives and actual procedures, not a final instrument.

There will be great differences between individuals as to the complexity of their experience, and the number of different jobs, locations, even spouses they have considered (or even had). We do not need, and could not handle, complete histories in any one of these areas. What we want to focus on are the choices that at the time seemed to be milestone decisions. We can then ask about the discarded alternatives, and the relationship of that choice to considerations in the other decision areas. Although recent work by Janis and others on decision making theorizes that for some people evaluations of past decisions may become more sophisticated and realistic rather than less, we realize that the discarded alternatives could appear progressively more and more unsavory as time passes and the process of dissonance reduction takes place. The important thing is that we are talking about decisions that were bound to have been salient, relatively infrequent, and often followed by or accompanied by substantial changes in life patterns.

We might start by asking the respondent to think back to the first job that at least at the time seemed to be the start of a career, a regular job not just a fill-in or stop-gap. We can ask how that job was found--for instance, through friends, relatives, want-ads, prior work for the same employer. We would ask about alternatives--more school, other jobs, etc. We would as about marital status and family expectations at the time, and the extent to which that affected the choice--by limiting alternatives, or because of joint benefits (fiance or spouse with a job in the same area).

And we would ask about the relation of the choice to considerations of what part of the country one preferred and to residential location. Did the choice mean moving? And did that speak in favor of the job choice, or represent one of its costs?

If there was already a spouse or expected spouse, what did the spouse's plans for job or family have to do with the first job decision? Was there some priority; that is, was one choice really made first (in influence not in time necessarily) and the others shaped to fit it?

Finally, at what stage did considerations about children--desired, expected, planned--become salient, and how did they affect the other choices? Did the respondent always plan to have some children, and how did that affect the job decisions of both partners?

We might introduce the subject with some very general questions about which decisions came first, or come back to that general issue, or both. Some people may be able to state clearly that there was a priority order in their pattern of decisions, with one settled relatively firmly and early, others following along made-to-fit. On the other hand, some people will have changed their minds about job, or location, or spouse, as events altered things, or new opportunities came along, or experience showed that past choices were unsatisfactory.

Much of this will become clear if we ask about the first expected-to-be-final choice in each area and how it affected choices in the other areas. The person who decided to move to California and had to re-make his job choice, or who married, decided to have children and stopped being a casually employed beach bum, might be able to tell us just that.

To lend a note of realism, we append an illustrative set of questions, not in the proper form with the proper skip instructions, but providing some feel for a possible sequence, content, and even some wording.

Draft Sequence for Getting at the Jointness of Decisions about Job, Residence, Spouse

1. Are you working now, looking for work, retired, a student, a housewife or what?

Working or temporarily laid off

2. What is your main occupation? What sort of work do you do?

______

______

______

3. Tell me a little more about what you do.

______

______

______

4. What kind of business is that in?

______

______

Looking for Work (Unemployed)

6. What is your occupation when you work?

______

______

(IF DON'T KNOW:) 6. What kind of job are you looking for?

______

______

Retired

7. What kind of work did you do before you retired?

______

______

______

Student, Housewife Other

8. Have you ever had a regular paid job or occupation?

☐ YES ☐ NO (SKIP TO Q 35)

______

______

10. We're interested in how people find their first regular job. Can you remember the first job you had that at the time you thought might be a regular, permanent job?

/YES/ /NO/-(SKIP TO Q35) /NO REGULAR JOB YET/-(SKIP TO Q35)

11. What kind of business was that in? ______

12. When did you first take that job? ______ MONTH ______ YEAR

13. Was the main occupation you ended up in the same, or related to that first job, or totally different?

(IF DIFFERENT): 14. Did that first job help prepare you for your main occupation at all?

IF YES: 15. In what way? ____________________

____

16. What were you doing before you got that first job? ____________________

____

(IF NOT CLEAR): 17. Had you been earning any money before that? ____________________

IF YES: 18. At what kinds of jobs? ____________________

____

19. How did you find that first job (through a friend or relative or an ad or an employment agency or what)?

____

____

20. Did someone help you get the job, or were you just hired because you qualified, or what?

____

____

21. If that job had not come along, what would you have done instead? What was the next best alternative--going to school, looking for another job, taking another available job, or what?

____

22. Some people move to an area, then find a job there. Others find a job and then move where the job is; and still others find a job that doesn't require moving. Can you remember whether you moved before you took that first job, or in order to take it?

Moved, then found job

Moved in order to take it

/Did not move/

/Other/

(IF MOVED IN ORDER TO TAKE JOB): 23. Was the move within the same area or to another part of the country altogether?

24. How did you feel about moving to the new place? Did it make the job more attractive, or something unwanted you had to do to get the job, or neither?

25. Why was that?

(IF MOVED FIRST, THEN FOUND JOB): 26. Can you remember why you moved then?

27. Did marriage have anything to do with taking that job? /YES/ /NO/(SKIP TO Q29)

(IF YES): 28. In what way?

29. Were you married or engaged at the time you took that first job? /YES/ /NO/(SKIP TO Q35)

(IF YES): 30. Did you have children at that time? /YES/ /NO/

(IF YES): How many?

31. Did the children you had or expected to have have anything to do with taking that job?

/YES/ /NO/-(SKIP TO Q.33)

(IF YES): 32. In what way?______________________________

____

33. Did your spouse or fiance's choices about work or school affect your taking that job?

/YES/ /NO/-(SKIP TO Q.35)

(IF YES): 34. In what way?______________________________

____

____

35. We're also interested in people's first decisions to get married, and how that is related to decisions about jobs and places to live. When were you first married?

__________ MONTH __________ YEAR /NEVER MARRIED/-(SKIP TO Q.61)

36. How long before that were you sure that you would marry that person (or engaged, which ever was longer)?

____

37. Did getting married affect your decisions about getting more education?

/YES/ /NO/-(SKIP TO Q.39)

(IF YES): 38. In what way?______________________________

39. Did getting married affect your choices about where to work?

/YES/ /NO/-(SKIP TO Q.41)

(IF YES): 40. In what way?______________________________

41. Did getting married affect your decision about what kind of job to get?__________

____

42. Did you move to a new residence when you got married?

/YES/ /NO/-(SKIP TO Q.44)

(IF YES): 43. Can you remember what determined where you lived then--was it your job or your spouse's job or school, or what?

____

____

44. We're also interested in spouse's job decisions. Can you remember your spouse's job situation when you were first married?

____

____

45. What was your spouse doing at the time you got married--was (he/she) working, going to school, or what?

____

____

(IF WORKING): 46. Was it his/her first regular job?______________________

____

(IF NOT WORKING) 47. Did he/she take a regular job later?______________________

____

(IF YES): 48. When was that? ______________ MONTH ________ YEAR

49. Did getting married affect your spouse's decisions about getting more education?__________

____

____

50. Did getting married affect his/her decisions about working?______________________

____

(IF YES): 51. In what way?______________________________________

____

52. Did you have a job at the time you were married?______________________

____

53. Did your job (your not having a job) affect whether or not your spouse worked?__________

____

(IF YES): 54. In what way?______________________________________

____

55. Did your job (your not having a job) affect your spouse's choice of jobs?

(IF YES): 56. In what way?

57. Did where you lived after you got married affect your spouse's choice of jobs?

(IF YES): 58. In what way?

59. Did the children you had or expected to have have anything to do with your spouse's choice of jobs?

(IF YES): 60. In what way?

61. We're also interested in how people find their first potentially permanent place to live and how jobs and marriage affect that. Can you remember the first place you lived alone or with your spouse that was not clearly temporary?

/YES/ /NO/-SKIP TO END) /HAVE NOT YET FOUND PERMANENT PLACE/-(SKIP TO END)

62. Where was that? ______________ CITY ______________ STATE

63. When did you move there? ______________ MONTH ______________ YEAR

64. Was that before or after you got married (the first time)?

/BEFORE/

/AFTER/ -- 65. What was your spouse doing at the time? ______________

66. What were you doing at the time; going to school, working or what? ______________

67. Did you have any choice about where to live, or was that the only place available? ______________

(IF CHOICE:) 68. What was the best alternative place to live like? ______________

69. Where was it, in the same community or where? ______________

70. Would you say your job or your spouse's job determined where you lived, or did you find a place and then get jobs or what?

____

71. Finally, how did your decisions about having children affect all this, did that ever affect your choice of jobs?

____

72. Did it affect your choice of the first place you lived that was not clearly temporary?

____

Guide to Question Design

Each box in the following matrix contains the question numbers for questions designed to ascertain that causal relationship.

RESULT

	JOB	MARRIAGE	RESIDENCE	SPOUSE'S JOB	CHILDREN
JOB		27, 28	22, 24, 25, 43, 70	53-56	31, 32
MARRIAGE	27, 28 39-41		42, 64	50, 51	
RESIDENCE	22, 24, 25 70			57, 58, 70	
SPOUSE'S JOB	33, 34		43, 70		59, 60
CHILDREN	31, 32, 71		72	59, 60	

Implications for the New NLS Panels

We have suggested that proper and efficient use of the panels to study economic socialization more broadly defined should benefit from retrospective studies that refine the hypotheses and test out question sequences. However, a limited set of questions might have to be designed and used in the first wave without waiting for that. We have not attempted to imbed them in the matrix of the previous young panel questionnaires. In addition, the questions appendended are not offered as definitive, nor polished, but are given only as an illustration of the types of questions that should be included. Some of the introductory questions would be asked anyway. It is the expectation questions, and a few rarely asked questions about decisions already made, that are crucial.

1. Are you going to school this term?

/YES/ /NO/

2. Do you expect to go back to school and get some more education?

/YES/ /NO/

3a. How many grades did you finish?

____

3b. When did you stop?______________________ (YEAR OR AGE)

(GO TO Q. 8)

4. How much education do you expect to finish altogether?______________________________

____

(IF NOT CLEAR:) 5. Will you go on after high school to get some college or other training?

____

(IF YES:) 6. What kind?____

____

7. How old do you think you will be when you finish your education?______________________

8. Are you working now?

/YES/ /NO/

9. About how many hours a week do you work?

______________________ (HOURS/WEEK)

/MORE THAN 20/ /LESS THAN 20/

10. How long have you been working half-time or more?

____

11. When do you expect you may start working or more?

____

12. Will that be before you finish school?

____

13. Why is that?______________________________

____

14. We're interested in the way people decide to finish school, find a job, get married, and raise a family. Some people first choose the person they are going to marry, and that affects what they do about schooling and jobs. Others first decide what kind of work they are going into, and still others don't make any decisions until they finish their schooling. How is it with you?

____

____

____

15. Have you ever had any children?

/YES/ /NO/-(SKIP TO Q18)

16. How many have you had, not counting still births?______________

17. In what year was your first child born? second? etc.

(FIRST CHILD)______________

(SECOND CHILD)______________

18. Do you expect to have any(more) children?

/YES/ /NO/-(SKIP TO Q21)

19. Do you expect to have these children in the next couple of years or do you plan to postpone them for a while?

/POSTPONE/ /HAVE SOON/-(SKIP TO Q21)

20. What are the specific factors causing you to postpone having (more) children?

____

____

____

21. How many children do you expect to have altogether?________________________________

22. If you couldn't have exactly that number of children, do you think you would have one more or one less?

/ONE MORE/ /ONE LESS/

23. Are you married, single, widowed, divorced or separated?

/MARRIED/ /SINGLE/ /WIDOWED/ /DIVORCED/ /SEPARATED/
(GO TO Q31)

24. Were you ever married?

/YES/ /NO/-(GO TO Q26)

25. What happened to your last marriage—were you widowed, divorced, separated, or what?

/WIDOWED/ /DIVORCED/ /SEPARATED/

OTHER (SPECIFY:)______________
____
____

(GO TO Q31)

26. Do you think you will marry?

/YES/ /NO/-(SKIP TO Q.37)

27. Do you think that you will finish your education before you get married?__________________
____

28. Do you think that you will work for a while before getting married?______________________
____

29. All things considered, how old do you think you will be when you get married?______________

30. If it were up to you, how soon after getting married would you want to have a (another) child?

(GO TO Q37)

31. Had you finished your education when you first got married?____________________

32. Did you work for a while before you first got married?____________________

33. When were you first married?____________________

34. We're interested in how getting married and having children affects a person's plans and activities. How has marriage and children affected your educational plans?

35. What about your plans for work and a career--how has marriage and children affected them?

36. How about where you live or plan to live--how has that been affected?____________________

37. Are you eager to move from where you live now?

/YES/ /NO/

38. When are you likely to move?____________________

39. Where would you go?____________________

40. Will you get a job first or what?____________________

A Related Suggestion

A separate but highly related issue that should be investigated along with the economic socialization process, is the early process by which people are sorted into jobs with less or more training. Our recent analysis of the Michigan panel data points clearly to such sorting as a source of sex and race differences in earnings. But we know little about how it happens.

What is required is more than the usual questions about sources of information and job search activity. Individuals may very well be conscious of the fact that friends or other connections helped them get the job. Indeed, they should be more aware of it than employers. But finding out about such a process requires asking rather direct questions. To illustrate, we append a rough draft of the kind of questions we are proposing for the eleventh wave of the Michigan Panel Study of Income Dynamics. Of course they would have to be refined, and fitted in with the regular occupation and job change questions.

The importance of this issue is obvious, since once people get into jobs with different training components, one can "justify" wage differences on the basis of differences in job functions, training, etc. without realizing that those differences may themselves be the result of an inequitable process.

Illustrative Question Sequences on How People Get Jobs

1. We are interested in how people hear about and get their jobs. When did you first get a job you thought of as a regular, possibly permanent job? ____

/NEVER WORKED/-(SKIP OUT)

2. What kind of job was it? ____

3. How did you first hear about that job--was it through a friend, a relative, a want ad, an employment agency or what?

/FRIEND/ /RELATIVE/ /WANT AD/ /EMPLOYMENT AGENCY/

OTHER: ____

4. Was there anyone who helped you get that job? /YES/ /NO/-(GO TO Q.9)

5. Who was it? ____

6. How did he/she help? ____

7. Did anyone else help or encourage you? ____

(IF YES:) 8. Tell me about it? ____

9. Before you got the job did you know anyone who worked there? ____

10. Are you still working for the same employer?

/NO/ /YES/ /NOT WORKING/-(SKIP OUT)

11. Do you still have the same position?

/NO/-(GO TO Q.20) /YES/-(SKIP OUT)

12. How long have you worked for your present employer? /NOT WORKING/-(SKIP OUT)

____

13. How did you first hear about a job with your present employer--was it through a friend, a relative, a want ad, an employment agency, or what?

/FRIEND/ /RELATIVE/ /WANT AD/ /EMPLOYMENT AGENCY/

OTHER: ______________

14. Was there anyone who helped you get that job?

/YES/ /NO/-(GO TO Q.19)

15. Who was it? ______________________________

16. How did he/she help? ______________________________

17. Did anyone else help or encourage you? ______________________________

(IF YES:) 18. Tell me about it. ______________________________

19. Before you got that job, did you know anyone who worked there? ______________

20. How long have you had your present position? ______________

21. How did you first hear that your present position was available?____________________

____

____

22. Do you think anyone helped you get that position?

/YES/ ↓ /NO/-(SKIP OUT)

23. Who was it?____

____

24. How did he/she help?____

____

Revised

M E M O R A N D U M

Needed Research on Employment Discrimination: An Agenda For Studies With The National Longitudinal Surveys *

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* I am grateful for the comments of Francine Blau and Lee Lillard.

INTRODUCTION

A survey of workers, whether cross-sectional or longitudinal, will shed relatively little light on the employer's decision to discriminate. Some aspects of the discrimination process must be investigated in other ways--through surveys of personnel directors, unobtrusive analysis of employment decisions, and case studies of firms and industries. But worker surveys can make an important contribution to our knowledge of discrimination in at least two ways. First, worker surveys can be used to construct indicators and marshall data to document "objective" discrimination--that is, discrimination defined by the observer. Second, worker surveys can monitor the correlates and consequences of perceived or "subjective" discrimination.

"OBJECTIVE" DISCRIMINATION

An annual survey of employment discrimination is justified if for no other reason than to monitor the enforcement of Title VII of the Civil Rights Act of 1964. Discrimination, like other illegal activities, must be monitored indirectly. Unlike most illegal acts, discrimination is poorly defined; its perpetrators may be guilty through ignorance. "Institutional" racism and sexism involve discriminatory practices that are so routine that they imply no evil intent by individual decision-makers. So even though intentional discrimination exists, studies of discrimination must go beyond intent. Discimination is usually inferred from the effects of employment decisions.[1]

The Null Hypothesis Approach

In empirical studies, discrimination is often used as an alternative explanation to one or more theoretically-derived, explanatory variables.[2] The investigator hypothesizes that men and women (or blacks and whites, etc.) will be equal on some dependent variable (see "Indicators" below) when such independent variables as education, experience, marital status, and so on, are controlled.[3] The residual, after other pertinent variables are controlled, contains the discrimination effect. Discrimination, although not directly observed, is inferred by eliminating the effects of bona fide sex and race differentials. Of course, discrimination itself may have caused the "bona fide" difference in a control variable (say, education or experience). Standardization and regression, or multiple equation models with appropriate assumptions about recursiveness may be used to examine sex or race differences.

Indicators. Sex and race differences in what? The typical dependent variable is earnings. The agenda for discrimination research should include debate about alternate dependent variables. Conceptual development in discrimination theories will suggest additional independent variables that minimize the residual attributed to discrimination. The National Logitudinal Surveys contain a wealth of indicators in addition to those usually mined.

Dependent variables. Hourly, weekly, or annual wages are the usual measure of earnings, and differences in earnings--especially differences that amount to unequal pay for equal work--are typically used as indicators of employment discrimination.[4] While this is adequate for comparing income streams, it provides little information about the discrimination found in pay that is unequal because of unequal work. Four additional areas--level of occupational attainment, job continuity, job equity, and career mobility (or pace of achievement)--deserve consideration as well.

One way to approach discrimination is in terms of occupational attainment when socioeconomic background is controlled. Discrimination may be indicated by the inability of blacks and women to convert their years of schooling into an occupation at the same rate as whites and men. This phenomenon is most obvious when blacks or women are segregated into a small number of job classifications. This happens in individual firms; but within aggregate samples such as the NLS, occupational segregation must be detected in the "crowding" of occupational codes with blacks or women.[5] Competition within the occupational ghetto often leads to lower earnings, of course, but the actual discrimination may have occurred before the worker ever earns a cent. It is important to note that occupational segregation is only one form of inappropriate occupational status. Blacks and women might not be in the overcrowded job categories but may still not have converted their education and skills into an appropriate occupation.

Even if the occupational codes are the same, the work may be unequal. Indicators of discrimination should include job continuity and job equity. Job continuity takes into account the differential incidence of job loss, layoff, and involuntary part-time work.[6] Job equity measures the worker's investment in his job - not only job security, but also fringe benefits, data available in the NLS. Job continuity and job equity affect earnings, or at least affect how earnings are interpreted. Discontinuity means that annual earnings will be lower than hourly or weekly wages suggest. Equity means that wages alone do not represent the worker's complete compensation. That is why these are important for understanding "equal pay."

But job continuity and job equity are also important for understanding "equal work." To the extent that blacks and women are excluded from continuous jobs with equity--and this is basically the argument of dual market theorists--there is evidence of systemic discrimination with broader structural implications than the behavior of individual employers.

Beyond job continuity and equity, career mobility offers a dependent variable that may indicate discrimination. Career mobility includes promotions, added responsibilities, transfers to more skilled areas within a firm, and transfer to a more successful or prestigious firm. The variety of job titles, responsibilities and firms represented makes these variables difficult to quantify with the NLS. However, a simple question that could tap this dimension, at least in bureaucratic organizations, is one of the form, "how many workers do you supervise?" and "how many levels of supervision are above you?" Besides this, the NLS is ideally suited for comparing time-in-grade and changes in responsibility.

Career mobility is important for two reasons. First, besides indicating discrimination in levels of achievement, it shows discrimination in the pace of achievement. Incidentally, this is the kind of finding that longitudinal surveys make possible--a topic considered in greater depth below. Second, career mobility helps tap another dimension of employment stratification, the access to authority or power. Decision-makers now have the power to discriminate. When that power itself is shared, it is evidence that discrimination is absting and the decision structure is no longer conducive to discrimination.

Equal pay for equal work is probably the clearest indicator that no discrimination exists. The research suggested here would shift the burden of inquiry from "equal pay" to "equal work." This represents a simple extension of current trends in employment research.[7]

Independent variables. The principal alternative explanations to discrimination have been derived from empirical labor market studies and from human capital theory. Region, a proxy for observed variations in wage rates, is an example of the former. Education, training, and experience are the principal examples of the latter. The NLS is exceptional for its detailed attention to the type, content and quality of training, and this is an area in which substantial research has been pursued.[8]

Migration can also be treated as an investment in human capital. It is usually conceptualized as geographic migration, but mobility--in the sense of firm, occupation, and industry changes--might also be included as an independent variable in examining discrimination. Certainly migration is related to employment and earnings.[9] But its relation to discrimination seems worth investigating for two reasons. First, employment discrimination may influence the decision to migrate. Migration, in turn, might influence subsequent discrimination. Frequent job-switching appears to discourage potential employers, at least those in the "primary" market. Frequent moves may also be interpreted as a sign of instability by employers as well as credit bureaus. Second, the assimilation of blacks into northern labor markets appears to have been affected by the time of migration from the South.[10] Use of respondents' and parents' birthplace could be used to refine a migration variable.

Aside from the human capital approach, more attention should be paid to the structural characteristics of firms. The degree and extent of discrimination are likely to vary with the size, industry, and organization of the firm. For example, firms of a certain size are required to file annual employment reports with government agencies. One might assume that these firms are especially careful to eliminate discriminatory practices.[11] On the other hand, small firms in competitive positions seem to be more likely to hire blacks, women and other "secondary" workers.[12] Thus, discrimination may be hypothesized to vary curvilinearly with firm size. Unfortunately, there is likely to be substantial response error in workers' reports about firm size and organization. And there are confidentiality problems in matching the reported name of the employing firm with corporate data available from other sources. Nevertheless, it might be possible with such data as union membership, industry, overtime pay structure, and so on, to construct variables that are proxies for the size, concentration or organization of firms.

A third area from which independent variables could be constructed is workers' social structure. Friendship networks used in job search are an alternative way of explaining why relatively few women or minorities are hired in a given firm. It is possible that this kind of analysis could be extended to some industries and occupations (e.g., construction, personal services; sales clerks, secretaries).

The customary indicators in testing "objective" discrimination are derived from human capital theory. A variety of additional indicators are available from the NLS. Migration, or mobility more broadly conceived, may be incorporated into the human capital framework. Moving away from human capital theory, it would be useful to have indicators of firm size and structure, and to use job search data as a proxy for the importance of worker networks.

A Longitudinal Approach. Comparisons of annual cross-sectional surveys are one way to monitor "objective" discrimination. But the longitudinal nature of the NLS permits cross-sectional time series as well as longitudinal analysis. The problem lies in identifying an individual victim from an aggregated determination of discrimination. One way to do this is by matching respondents on a number of characteristics and observing their career patterns. A second approach possible with the NLS is to observe several family members simultaneously when one or more of them is subject to discrimination. If this can be done, it seems particularly important to follow the victims of discrimination along several dimensions: earnings and work conditions, job security, job continuity and career.

"Subjective" Discrimination

The agenda on discrimination research needs to go beyond "objective" discrimination, whether overt or institutional. The measurable impact of discrimination may lie not only in what is "objectively" discriminatory, but also in what is perceived to be discriminatory. Easterlin has argued for the importance of the relative wage; more generally, a perception of fairness is likely to affect job satisfaction and motivation.[13] A good deal of evidence indicates that although racial attitudes are improving, employment discrimination remains controversial. Blacks appear to be losing faith in the government's determination to enforce fair employment laws. They do not feel fairly treated. There is considerable controversy over the Bakke case and the problems of affirmative action, quotas, and reverse discrimination. Further, employers will privately express fears that affirmative action will decrease morale, because men (or whites) don't want to work with women (or blacks).[14] It seems that whites may also feel unfairly treated. At the same time, attitudes on scales of racial tolerance have become so tolerant that researchers need to splice the scale with more "liberal" items. This is a serious combination of factors: a continuing perception of injustice, deteriorating confidence in the government's good faith, and erosion of the moral support for compensatory measures, all of them occurring at a time when traditional survey techniques are unlikely to monitor the changes. Here is an area in which the NLS could make a substantial contribution.

The NLS as a Victimization Survey. The most recent round of NLS surveys asked a question of the form, "Since 1971, do you feel that, so far as work is concerned, you have been in any way discriminated against...?" This is a key question for documenting the extent of perceived discrimination. A number of interesting questions come to mind. How widespread is the sense of "reverse discrimination?" How far does the "objective" incidence of discrimination overlap the "subjective" incidence?[15] How do people subject to discrimination in several categories partition the discrimination they experience? Do black women, for example, attribute it to their gender or their race?

On the other hand, the present wording of the question precludes some interesting studies. The five-year span in the question is insensitive to changes in the business cycle, new legislation, and other issues that may affect the perception of discrimination. The five-year span gives us little idea whether respondents think the situation is improving, deteriorating, or not changing.

The respondent may not personally be the victim of discrimination, but may be a token member of an otherwise white or male work group. Some case study data seem to indicate that the token worker faces a variety of stresses not shared by other workers.[16] An appropriate follow-up to the discrimination question might ask, "How many blacks (or women) do you work with every day?" The token worker, although not reporting discrimination, may show similar psychological correlates. For example, both token workers and discrimination victims may show changes in the I-E scale. Goodwin's questionnaires on work motivation suggest a variety of additional items that might be applied to the impact of discrimination.[17]

Affirmative Discrimination? It may be that no matter how tolerant Americans become on issues of racial equality, job equity will be valued even more. Thus, there may be continued resistance to affirmative action, segregated seniority rosters, and similar programs. Unfortunately, what the rank-and-file may view as a consistent stand on equity--no discrimination against anyone--may be viewed by employers as am anti-black or anti-woman stand. Then employers feel justified in dragging their feet because "the men on the shop floor won't accept this," "they can't take supervision from a woman," an so on. The NLS could provide evidence on this by developing an attitude scale on job equity and discrimination. Some potential items for such a scale have appeared in the literature.[18] One possible item could take the form, "I could work as well under a woman supervisor as under a man," or "The most important thing to me is that other workers on the job be qualified, regardless or race and sex." These items might be spliced into the "attitudes on women's work" scale.

A more difficult question is the effect of relative wages and working conditions on perceived job equity. For the new NLS cohorts, it might be useful to modify the "Knowledge of the world of work" scale. Besides asking who does earn more, an unskilled worker in a steel mill or one in a shoe factory, we might ask who should earn more, one who works in a hot, dirty job with lots of physical movement, or one who works in a quieter, more routine job but who must sit in one place for long hours.

Longitudinal Considerations. Subjective discrimination and attitudes toward equity need to be viewed in a longitudinal framework. The consequences of perceived discrimination are likely to be different from the consequences for a worker who is objectively, but not subjectively, a victim of discrimination. Similarly, the attitudes of white workers on the equality-equity issue are likely to vary depending on government enforcement and the business cycle. (Displaced aggression generally correlates with the business cycle. When there is general anxiety about job security, anti-discrimination measures may provoke an unusual amount of hostility.)

Earlier research on NLS youth cohorts has confirmed discrimination in entry-level jobs.[19] It seems to me especially important that the subjective reactions of workers at the entry-level be monitored, principally because of the impact this may have on later work attitudes. Earlier research on the NLS has shown that involuntary idleness leads to higher externality.[20] A more general perception that the cards are stacked against you--by overt or reverse discrimination--may have an even greater effect on work attitudes.

Concluding Comments

Related Areas for Study

I have devoted relatively little attention to age discrimination. Subjective reports of age discrimination also require annual reporting to determine at what age it begins. Further work on age discrimination depends at least in part on the fate of the mandatory retirement act now in Congress. An area of discrimination that deserves more attention is the requirement of irrelevant credentials, which, although not covered by Title VII, has been forbidden by the Supreme Court.[21] On the other hand, the inclusion of discrimination against religion might be dropped, for without information about the respondent's religion, this subjective response is difficult to use.

The handicapped, including ex-addicts and ex-alcoholics, are now protected by anti-discrimination legislation. It is appropriate to consier whether the current battery of health questions can be modified to permit a straightforward definition of physical handicaps.

Summary of Suggested Changes in NLS

The principal suggestions I have made may be summarized as follows:

1. Greater knowledge about the size and composition of the immediate work group (or of the firm, if possible).
2. Knowledge of the respondent's position in the supervision hierarchy.
3. Yearly reports of perceived discrimination, except perhaps for religious discrimination.
4. Attitude data on job equity, relative wages, and equality.

Footnotes

1. For example, the Supreme Court has used a statistical test as prima facie evidence for discrimination. Casteneda v. Partida 97 S. Ct. 1272, 1281 (1977); Hazelwood School District v. U.S. 97 S. Ct. 2736, 2742 (1977). Also see Mr. Justice Stevens' dissent at page 2747, which tends to agree with the statistical test. For a review of other decisions, see S. Levitan, W. B. Johnston and R. Taggart, Still a Dream (Cambridge:Harvard, 1975), ch. 13.

2. Space does not permit a discussion of the theories of discrimination that inform the empirical work. For a useful review, see R. Marshall, "The Economics of Racial Discrimination: A Survey," Journal of Economic Literature 12 (September 1974):849-71.

3. For example, see the explanatory variables summarized in the table on pp. 84-88, in A. I. Kohen et al., "Women and the Economy," (Columbus, O.:Center for Human Resources Research, The Ohio State University, 1975).

4. Frequently, such studies show little discrimination when job is held constant. R. P. Straus and F. W. Horvath, "Wage Rate Differences by Race and Sex in the U.S. Labour Market:1960-1970." Economica 43 (August 1976):287-98, find that adverse employment, not wage rates, affects blacks when job is controlled. Kohen concludes that there is little sex discrimination in the form of unequal pay for equal work (op. cit., p. 83). However, some of the studies could be interpreted otherwise. For example, see L. Suter and H. Miller, "Income Differences between Men and Women," American Journal of Sociology 78 (January 1973):962-974.

5. For discussion of occupational segregation, see B. R. Bergmann and J. G. King, "Diagnosing Discrimination," pp. 49-110 in P. A. Wallace, ed., Equal Employment Opportunity and the AT & T Case (Cambridge:MIT Press, 1976); M. Blaxall and B. R. Reagan, eds. Women and the Workplace: The Implications of Occupational Segregation (Chicago:U. Chicago Press, 1976). Because market concentration seems to be related to occupational segregation, one useful approach might be to relate industry codes to market concentration data and compare differentials in concentrated and unconcentrated industries.

6. Job equity and continuity seem to distinguish the primary from the secondary markets in dual market theory. See M. J. Piore, "Notes for a Theory of Labor Market Stratification," Working Paper No. 95 (Cambridge, Mass.:MIT, 1972). For an application with NLS data, see P. J. Andrisani, "An Empirical Analysis of the Dual Labor Market Theory," (Columbus, O.: Center for Human Resource Research, 1973).

7. For example, women physicians work fewer hours per week than men, and this helps account for their lower earnings despite identical responsibilities. B. H. Kehrer, "Factors Affecting the Incomes of Men and Women Physicians: An Exploratory Analysis." Journal of Human Resources 11 (Fall 1976):526-45.

8. For example, see F. A. Zeller et al., Career Thresholds: A Longitudinal Study of the Educational and Labor Market Experience of Male Youth, Vol. II (Columbus, O.: Center for Human Resources Research, 1970).

9. H. H. Long and L. R. Heltman, "Migration and Income Differences between Black and White Men in the North," American Journal of Sociology 80 (May 1975): 1391-1409; B. Bluestone, W. M. Murphy, M. Stevenson, Low Wages and the Working Poor (Ann Arbor: Institute of Labor and Industrial Relations, The University of Michigan--Wayne State University, 1973), Chapters 7 and 8.

10. S. Lieberson and C. Wilkinson, "A Comparison between Northern and Southern Blacks Residing in the North," Demography 13 (May 1976):199-224.

11. See A. F. Brimmer, "Economic Growth and Employment and Income Trends Among Black Americans," pp. 142-162 in The American Assembly, Jobs for Americans (Englewood Cliffs: Prentice-Hall, 1976), E. Ginsberg, ed.,pp. 155-58.

12. Implied by dual market theory. See, for example, D. M. Gordon, Theories of Poverty and Underemployment (Lexington, Mass.: Heath, 1972), pp. 47-49.

13. In this section, "equity" refers to equitable treatment; in the preceding section, it referred to the workers' investment in the job. For further remarks on equitable treatment, see L. Thurow, "Equity Concepts and the World of Work," pp. 207-220 in A. D. Biderman and T. F. Drury, eds. Measuring Work Quality for Social Reporting (New York:Wiley, 1976). For relative wage arguments, see R. Easterlin, "Does Money Buy Happiness?" Public Interest 30 (Winter 1973):3-10.

14. See B. R. Bergmann, "Reducing the Pervasiveness of Discrimination," pp. 120-141 of The American Assembly, Jobs for Americans (Englewood Cliffs:Prentice Hall, 1976), E. Ginsberg, Ed., pp. 126-27.

15. Relatively little overlap was found in one investigation of this question. See T. Levitin, R. P. Quinn, G. L. Staines, "Sex Discrimination against the American Working Woman," pp. 79-96 in L. S. Fidell and J. Delamater, eds. Women in the Professions: What's All the Fuss About? (Beverly Hills:Sage, 1971). On the other hand, perceived discrimination seemed very discouraging to the black teenaged women studied in P. A. Wallace, Pathways to Work (Lexington, Mass:Heath, 1974).

16. See R. M. Canter, "Some Effects of Proportions on Group Life: Skewed Sex Ratios and Responses to Token Women," American Journal of Sociology 82 (March 1977): 965-990; Bergmann, "Reducing the Pervasiveness of Discrimination," p. 130.

17. See L. Goodwin, Do the Poor Want to Work? (Washington:Brookings Institution, 1972), pp. 119-135.

18. See B. M. Bass, J. Krusell, R. A. Alexander, "Male Managers' Attitudes Toward Working Women," pp. 63-78 in L. S. Fidell and John DeLamater, eds. Women in the Professions: What's All the Fuss About? (Beverly Hills: Sage, 1971). Items include "Males resent working for a female boss."

19. Andrisani, p. 87.

20. See H. Parnes et al., The Pre-Retirement Years, vol. 4, Manpower R & D Monograph 15 (Washington, GPO, 1975), pp. 197-236.

21. Griggs v. Duke Power Company.

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THE QUALITY OF WORKING LIFE

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My willingness to participate in this meeting is in part motivated by a debt of gratitude to Professor Parnes, the Center for Human Resource Research and the Employment and Training Administration for their achievement in producing the National Longitudinal Surveys. I have not done a systematic search, but judging from the number of papers that cross my desk, it seems that the NLS data and the related panel from the Survey Research Center at the University of Michigan are responsible for 90 percent of the useful output of empirical labor economics these days. The NLS data have been a truly important source of increased understanding of many substantive problems in labor economics related to all kinds of dynamic issues, including life income and earnings, patterns of labor supply, fertility, mobility and family relationships, that simply could not be studied in any other way. I also believe that they have had a very important byproduct in stimulating the development and application of powerful analytical and statistical techniques of analysis, including quantal choice, unobserved component and factor analytic models, models of data selection, truncation and censorship, dynamic stochastic processes and so forth. Clearly the NLS project easily passes the cost-benefit test that economists are so fond of, and at a high enough rate of return that there is even no need to argue about whether the social or private rate of discount is appropriate. Since the return has been so high, it is gratifying to see that there is substantial interest in additional investment.

The other part of my motivation comes from the often observed fact that so many academic economists are reluctant to become involved in the difficult process of data production, yet are hardly reluctant to bemoan the lack of data adequate for their theories. As a result there is a great premium on theorizing and developing elaborate statistical methodology to overcome data limitations. It even seems that many theories develop an independent life of their own, divorced from behavior and constructed without thought to the kinds of data that could in principle be used to test them. In spite of the lack of controlled environments in social science research, is it any wonder why there is always so much difference of opinion over empirical questions? Hence, the other part of my motivation for being here--to get involved at the ground level and hopefully to initiate a serious discussion on the feasibility and desirability for obtaining new information that presently is not collected in the surveys.

In brief, the panel data that we have now are best suited (for economists) to studying what might be called the supply side of the labor market. They do not tell us very much about the other side of the market, the demand side. We have information on only one blade of the scissors, as it were. To be sure, one blade may be enough if the world really is characterized by the knife-edge type of equilibria inherent in supply dominated theories. Indeed, the very lack of data on the demand side inhibits the development of demand relationships. In any case, I see no reason for being forced to assume that supply is all that matters if it is possible to obtain information that could incorporate a wider class of hypotheses.

Household survey data of the Census type, whether it be simple cross sections of the Current Population Survey variety, or the more ambitious panels of the NLS, are very strong on personal social and economic characteristics of the population sampled. They give extensive information on sources of income and earnings, household and family characteristics, patterns of labor force, employment and unemployment experience, family background, formal schooling, attitudes and preceptions, and even measures of IQ and ability. We know a great deal about the people in the sample. We don't know very much about the work they do, and about the characteristics of their jobs and the employers they work for. It is true that some information of this sort is available: Workers are coded by a variant of the Standard Industrial Classification (one wonders why the full SIC detail isn't used for this purpose) and by their wage and salary status (class of worker). They also report their occupation or job title and are assigned a number based on the official occupational classification. But note that the official occupations are themselves dominated by a socio-economic status approach to classification and much less by a technological approach that would be more amenable to economic analysis. I believe it would be desirable to expand this kind of information and would like to explore some of the possibilities for doing so.

Why is it important to obtain information about the characteristics of work and employment? The title of these notes gives away my own feelings on the matter and I suspect that they are widely shared by others. Summary measures of income inequality presently are all related to the moments of the personal distribution of income and earnings in one way or another. Statistics of income are the best available for measuring the distribution of economic well-being in society and for charting changes in it over time. The rationale is simple enough: A person's income is a very convenient index of welfare because if summarizes the ability to command consumption, and it is consumption that "produces" economic welfare. However there has been some reassessment of this view in recent years. For example it might be possible to rationalize the whole "social indicators" movement in terms of dissatisfaction with existing economic statistics. More generally, we have become aware of the disamenities associated with economic growth and development, including such things as crime, pollution and crowding. These are "consumption" items too, but seldom get accounted in official measures. It is becoming increasingly clear also that imputations should not be exclusively confined to output markets, since so much of a person's time is spent at work: A great deal of essentially consumption activity takes place in the labor market in terms of the characteristics of jobs and other aspects of employment. Hence it is difficult to maintain a strict dichotomy between consumption and work. In sum, the available wage is only one out of a multi-dimensional set of indexes of employment opportunities that constrain supply and demand decisions. Nonmonetary conditions of work are equally important, but we don't know much about them at the micro level.

One of the important findings that has emerged from the NLS and Michigan panels is that there are remarkable differences in market outcomes (e.g., earnings patterns) among people that persist throughout their lifetime. For example, more than one half of the personal variance of earnings among people of the same race, sex, experience and schooling can be attributable to unobserved person effects that probably persist throughout the entire work life of the cohort. Presumably much of this is attributable to interpersonal differences in talents and motivation. We know little about how these differences get reflected in the kinds of work that people do and in their employment conditions. The panels also show marked interpersonal differences in job mobility over the life cycle. No doubt much mobility at young ages is best described as job shopping, but a large amount persists among older workers too. There are stayers and movers whose behavior is influenced by both their own personal characteristics and by the job opportunities that constrain them. For those who like to think in such terms these issues are connected to the distinction between internal and external labor markets. For those who like to think, as I do, in other terms, they are related to the distinction between specific and general human capital. Evidently tastes for leisure, nonmarket opportunities and labor market discrimination play roles here as well. It is often said that the poor experience adverse employment and earnings outcomes because no "good jobs" are available to them. Some have used this argument to support public employment programs. Whether the public sector can supply good jobs remains to be seen. The point is that right now it is difficult to distinguish a good job from a bad one, because no adequate existant data are up to the task. If we are going to get any sensible public policies that essentially operate at the level of working conditions, then we had better find out what those working conditions are, and how they interact with the socio-economic characteristics of workers that we can and do measure. The inherent dynamics of this problem also strongly suggest that panel surveys would be very desirable.

I suspect that many of these issues ultimately will be related to the general problem of the division of labor in society, a fact that should increase the appeal of this kind of data to the whole spectrum of social scientists, since that notion is central to most of them. My own view is of course highly colored by my background as an economist. I like to think of it as an assignment and matching problem. A job is a collection of production activities and an associated consumption (amenity and disamenity) vector. Investment (learning) opportunities might be involved too. The distribution of jobs and the way different people are slotted into them is jointly determined by the production technology, the productive traits and talents embodied in various members of the labor force, the costs of producing more amenable working conditions and opportunities for learning and the valuations that workers place on them. To get a good picture of the matching problem it is useful to think of the problem of marriage. In many ways the assignment of workers to jobs is closely analogous to the marriage market. There is the equivalent of courtship and search, marriage, divorce and remarriage. There also may be assortive matching. It is true that the explicit contract duration tends to be shorter in the job market than in the marriage market and that there is an important quid pro quo--the wage--that is more explicit than in most marriages. However, many of the contractual terms-including such things as job security, the nature of work assignments and hazards, are just as implicit as in the marriage market. I don't mean to suggest that we will solve the problem of marital instability by collecting data on jobs and working conditions, but there are some interesting parallels nonetheless.

Let me give an example of one possible use of this data based on some of my own research. This particular problem is closely related to the problem of evaluating work amenities and disamenities more generally. The question to be answered was, how much must a white teacher be paid to work in a school with mainly black students? Correspondingly, how much must a black teacher be paid to work in a school with mainly white students? The data used were from the Coleman report, which, by the way, is one of the few sources that gives information on both the socio-economic characteristics of workers and the characteristics of the schools at which they work. The analytical framework was the matching problem summarized above: Teachers are viewed as selling their productive traits to the schools and simultaneously purchasing the student, curriculum and neighborhood characteristics of the school in which they were employed. By the same token, the schools purchase teacher traits and sell their own characteristics. The teacher characteristics identified by the data were the usual set, including formal education, experience and ability. The school characteristics were split into three sets, including characteristics of students, specific attributes of the curriculum and aspects of the neighborhood in which the school was located. Of the first group, racial composition of the student body was the attribute of major interest. We also had measures of student ability (test scores) and student motivation and truancy. The method was to partition observed wages into a component due to exchange of the services of teacher attributes and another component due to exchange of school attributes, using multivariate regressions. Those interested in the details can consult the Journal of Econometrics Vol. 3(1975), pp. 123-50. I will say no more here than that the decomposition worked and it was possible to impute teachers' implicit valuations of the school attributes. Additional evidence that these methods are workable is provided by another study in which it was possible to estimate worker valuations of job safety by similar methods and by a study in progress on the relationship between intercity wage differences and intercity amenities and disamenities. One would hope to be able to do these kinds of studies on a broader scale and obtain the valuations necessary to impute more aggregate indexes of the quality of working life. Right now it is only possible on a catch-as-catch-can basis for selected workers and jobs in the economy. Furthermore, it is not at all possible to study any of the dynamics mentioned above with current data sources. The remaining question therefore is, how can this be implementsd in the NLS survey?

Contemplating the details of this question has at once made me better understand the reluctance of my academic colleagues to become involved in data collection. Clearly I cannot come up with a detailed questionnaire here, though undoubtedly the members of this meeting collectively can do so after much thought and discussion. There is evidence that it can be done, however, and any new efforts probably will follow the lead of past researchers. Specifically, there is the recent study by Rees and Schultz on the Chicago labor market, one by Renyolds and Shister almost 30 years ago (Job Horizons: A Study of Job Satisfaction and Labor Mobility, Harper and Brothers: New York, 1949) and recent surveys by the Survey Research Center and the Employment Standards Administration (Survey of Working Conditions, 1970 and 1973). No doubt there are also many case studies with which I am unfamiliar. The ideal method would be to supplement the household survey with a corresponding survey of employers matched to household records. Something close to this has been already done for previous NLS data in the way ability indexes were obtained (by searching high school records). Even barring a survey of employers, many of their characteristics might well be obtained from matching their idenfitication to other data on payroll statistics from Employment and Earnings (small employers are not represented here, but half a loaf may be better than none), the Occupational Safety and Health Administration, Social Security files and so forth.

The following is a list of general indicators that would appear to be feasible:

Employer Survey:

(i) Employee's work record from payroll data, including absenteeism and reliability that would supplement the household data presently collected.

(ii) Promotion prospects of worker and typical experience on the job to which he is assigned.

(iii) General measures of industrial work hazards (best from actual reports to OSHA) and known hazards or dangerous substances to which worker is exposed.

(iv) Establishment size.

(v) Measure of employment stability in establishment based on turnover statistics from payroll data, including previous quit rates, layoff rates, new hire and rehire rates, and variability of hours worked. Job grading and bumping. Seniority.

(vi) A measure of the racial composition of the work froce in the establishment.

(vii) Average wage in the establishment and major occupational distribution.

(viii) Hours and shift work in the establishment. Seasonal employment variability.

(ix) Extent of unionism and coverage by collective agreement.

Household Survey:

(i) Questions pertaining to physical characteristics and requirements of the job.

(ii) Preception of responsibilities, independence and control over the work situation and interest in the work (related to job "breadth" and complexity).

(iii) Fairness of treatment and relationship with fellow workers and management.

(iv) Steadiness of employment and potential job security.

(v) Extent and nature of injury risks and occupational hazards.

(vi) Extent of fringe benefits and perquisites.

(vii) Is the establishment covered by a trade union contract and is the worker a member? (This data has been collected in some NLS surveys, but not all of them).

(viii) Chances for advancement and training.

(ix) Methods of payment, including piecework, time work, incentive bonus, attendance and timekeeping allowances, condition money, job grading and profit sharing or anual bonuses (also from employer survey).

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Potential Research on Families

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Introduction

In the July 1977 Statistical Reporter there was a draft of a chapter of a document concerning the framework for planning U. S. federal statistics during the period 1978-1989. In the chapter on longitudinal surveys, concern is expressed for the proliferation of very expensive longitudinal surveys. The possibility of "omnibus" longitudinal surveys covering a variety of subject areas is advanced. Reading this discussion prompted me to reflect on the development of the content covered in the Parnes surveys over the past decade. These surveys have, it seems to me, changed greatly in their character, moving from a well-focused study of the dynamics of labor force behavior toward being an "omnibus" social science survey. I do not mean to criticize this evolution. Indeed, this kind of an evolution might well have been expected for the simple reason that virtually all of life's activities are implicated either as cause or effect in the labor force behavior of men and women.

It does seem worthwhile at this juncture as plans are being made for another set of longitudinal surveys to think about this evolution. The choice may be thought to be between a superficial, incomplete, and inadequate treatment of a great many topics, and a thorough examination of a limited number of related topics.

Given the fact that the surveys will continue to be sponsored by the United States Department of Labor one can presume that the central focus of attention should be the labor market behavior of the population group being studied. That labor market behavior should be documented as thoroughly and carefully as possible.

The question then remains, what of the myriad of determinants and consequences of various patterns of labor market behavior should be seriously examined and what is the trade-off between being able to deal superficially with a large number of these different determinants and consequences vs. being able to deal in a more definitive way with only a few.

The National Fertility Study experience is interesting in this regard. Ryder and Westoff, at least in the 1975 longitudinal follow-back of the 1970 sample, confined their attention almost entirely to the direct measurement of fertility variables, evidently resisting the temptation to probe more widely into its determinants and consequences.

My conclusion would be that it is most desirable to select a very limited range of topics that go beyond the direct measurement of labor force involvement, specify those topics in advance, and plan for a more orderly and more detailed treatment of them, rather than shifting focus from topic to topic in each successive re-interview.

Despite my advocacy of focusing detailed attention on a narrow range of subject areas, I have chosen in this memorandum to review a wide range of family-related topics that could be profitably examined in future NLS rounds, or in other longitudinal studies. Reasonable women and men will differ in the priorities they assign to these various topic areas, and I have chosen not to devote too much attention to priorities among these topics. I am more concerned that whatever is done, is done well and in sufficient detail to produce a substantial increment to our knowledge of the social processes involved, and to take fullest advantage of the longitudinal survey design. In the latter section of the memorandum, I will consider four general issues that pertain to family research, as well as research on other substantive topics, relevant to the design of a new round of longitudinal surveys.

I will organize this discussion around a series of specific life cycle stages or transitions. Analyses of some of these stages and transitions will not be feasible with data collected in the Parnes studies, but it makes sense to enumerate them nonetheless and make explicit some of the limitations of these data. The life cycle stages to be discussed are:

1. Childhood
2. Completion of education and entry into the work force
3. Marriage
4. Early married life --
    the childless stage, i.e., the period prior to the birth of the first child
5. The transition surrounding the birth of the first child
6. The age of children, their entry into school, etc.
7. "The empty nest"
8. Marital disruption
9. Old age

1. Childhood

Little can be done in connection with the childhood stage of the life cycle with data gathered from the existing samples and proposed new cohorts. This is true despite the fact that many of the women and men in the sample have had or will have by the conclusion of the panel a full complement of children. The problem is that we would have neither the full cross-section of children of any given age at any given time; neither would we have the full set of parents of children of any given age at any given time nor the full set of children of any given cohort of parents.

However, one possibility is to retrospectively collect complete residence histories and/or family composition histories of the young adult panels since birth in order to understand the complexity of the family arrangements and living arrangements through time, and their effect on subsequent behavior. We routinely ask a question in surveys, as was asked in the OCG II study, with respect to whether the person was living with both parents at about age 16 or so, and if not, whether the reason for that was the death of a parent. With high levels of marital disruption, this kind of questioning may give a quite erroneous picture of the family environment within which an individual grew up. For one thing, the question is not specific with respect to living with step-parents. And for another, age 16 may not represent well the individual's total familial environment when growing up. One study which has done this is that of Lee Robbins, in a very unrepresentative sample of black males in St. Louis. Some of these data have been analyzed by Ratcliff (1977). Questions used in this study could be considered for inclusion here.

2. Completion of Education and Entry to the Work Force

This topic, in general, is covered more appropriately in David Featherman's memorandum on "Schooling and the Transition from Schooling to Work." It is relevant here only to the extent that completion of education and entry into the work force are interconnected with familial processes (i.e., has familial determinants and/or consequences). Clearly, it does have these determinants and consequences and they should be considered. The only issue that I will discuss here is the question of the interrelationship between age at first marriage and these other processes.

3. Marriage

In connection with marriage, there are several relevant issues:

1. The age distribution of first marriages
2. Patterns of assortative mating
3. The interrelationships among marriage and schooling and job choice

The most important issue with respect to marriage itself is to obtain a better understanding of the recent rise in cohort marriage ages. In order to model the process of marriage, a great deal of information on antecedents is required, much of which has not been asked of the earlier Parnes survey. I do not think that a great deal can be learned from these data on the changing process of marriage, but the new cohort offer an opportunity to take a fresh view of the marriage process. Two exemplary studies of the marriage process are those of Hogan (1976) and Voss (1975). If there were serious interest in this issue, additional measures could be added to the new cohort study in order to better tap the theoretical ideas of Becker and other economists as well as the sociologists.

If more adequate data were available on some of the antecedents of early or late marriage and/or of homogamy or heterogamy of marriages, we would be in a better position to assess the social and economic consequences of early marriage without the serious problem of confounding early marriage itself with the process of selectivity of early marriages on factors also associated with the presumed consequence. (For studies of consequences of early marriage and childbearing, see Presser, 1971, 1974; Bacon, 1974; Furstenburg, 1976 a, b, c; Cutright, 1973; Coombs and Freedman, 1970; Freedman and Coombs, 1966; Trussell, 1976, Baldwin, 1976, and Menken, 1972).

Life experiences of unmarried persons.--Historically, for a very large share of women, marriage followed almost immediately upon the completion of education. And for any given cohort only a small number of person-years were spent as an unmarried adult. We suspect that this has changed for recent cohorts with the rising age at first marriage. There are several interesting questions that might be addressed with these data and they may help achieve better understanding of the long-term social and economic significance of the rise of age at first marriage. First, exactly what are young, unmarried adults doing? To what extent are they living independently of the family of orientation? What effect does the length of the interval between the completion of education and marriage have on subsequent labor force and familial behavior? Does this effect depend on the activities and living arrangements during this interval?

In order to address these questions, taking advantage of the longitudinal design, it is essential to get detailed information on the activities of high school age members of the new cohort. In addition to part-time jobs and attending school, what do they do that might dispose them to early or later marriage, to particular types of educational aspirations, to premarital pregnancy, etc.

4. and 5. Early Married Life: The Childless Stage and the Transition to Parenthood

These life-cycle stages are extremely active periods in the lives of men and women. Many crucial transitions occur and decisions having consequences for future stages in the life cycle are made. There is typically a high incidence of residential movement including migration from one labor market area to another as well as local movement involving the adjustment of housing to changing needs for space and amenities, and an improved ability to pay for housing. It is also a period of frequent job change as individuals seek to find their best niche in the occupational structure. In addition, young couples are acquiring consumer durables, and setting their consumption standards and establishing their unique life style. They are also developing plans for childbearing.

In addition this is the period during which marital conflict is common as couples are learning to adapt their own activities and behavior to the desires and needs of the spouse. It is a period of very high rates of marital disruption. (Probably one marriage in six or seven will terminate within the first five years, despite a rising age at marriage distribution).

In recent years, there has been an increase in the interval between marriage and the birth of the first child, and it would not be surprising if the interval expanded even further. Even if the median interval does not change very much, the upper tail of the distribution may spread out, and the prevalence of premarital pregnancies is likely to decline (see Sweet 1977).

The labor force participation rates of young wives prior to the birth of their first child have continued to increase. In addition, the rates of participation following the birth of the first child have continued to increase, and are now quite high.

(1) A major focus of attention ought to be on recent change in the economic circumstances of young couples in the United States. This would involve looking both at inter-cohort changes, as well as at the processes generating differential economic circumstances of young couples in relation to educational characteristics, other background characteristics, childspacing, and wives' participation in the labor force.

(2) Of high priority is to try to get a greater sense of the processes by which sex-role norms and attitudes are found, and their consequences. In this regard, I think it is important to recognize these as dynamic attitudes and not regard them as sort of psychological traits which once measured, apply forever to the individual. The important point here is that these attitudes and norms are not only changing society-wise through time, perhaps at a very rapid pace, but they also change in response to changing conditions and experiences of individuals. Therefore, it would seem to me that in addition to asking the labor force series year after year, it would also be well to ask at least a selected set of sex-role norm or sex-role attitude questions, as well.

(3) A similar rationale applies to studying the division of labor within the married couple's household. This division of labor is not fixed, but may be constantly in flux.

I would concur with Harriet Presser's conclusion in a paper on female employment and the division of labor within the home:

> "Now that we are seriously studying the employment of women outside the home it is time we gave at least equal attention to the division of labor inside the home." (1977)

In both cases, it is important to attempt to better understand the consequences (if any) of a given pattern of sex role orientations and/or division of household labor, independently of the antecedents of these orientations and behaviors.

(4) Relations with kin.--It has been difficult in the past to get representative measurements of kin contact of young couples following their own marriage. These data provide a unique opportunity to get an indication on a nationally representative basis of the degree to which relationships with kin persist following marriage for a cross-section of the United States population, and also an indication of the degree to which such contact, or lack thereof, is influential in other life cycle or career decisions.

(5) A specific issue in this regard is the extent of parental financial assistance to young persons following their marriage. This is very closely tied up with the process of marriage and completion of education, particularly when an early pregnancy occurs either prior or or shortly after the marriage.

(6) In connection with the working wives, questions involving adaptations of her life and those of other members of the household would be of value. Specifically, it would be interesting to know (a) how couples adapt to the patterns of child care in a two worker household. By that, I do not specifically mean day care, but that routine child care -- the bathing, the feeding, playing with and caring for infants and young children. (b) Leisure time activities -- How do working couples deal with their leisure in comparison to couples with only one earner? (c) The division of labor with respect to household tasks. How do two earner families compare with one earner families? (d) Do sex-role attitudes and various aspects of "happiness" and life satisfactions differ by employment status of the wife (and husband)?

In addition to looking at cross-sectional differences by work status, it would be possible to look at changes in these patterns in response to changes in the employment status of wives (see later discussion on the problem of "exposure to risk").

(7) Of particular significance for young couples is the accumulation of assets and the incurrence of debt. It would seem to me that more attention should be paid to these processes. Particularly relevant would be the impact of child spacing on these processes and these processes themselves on child spacing.

(8) It would be valuable to have collected more data on the spouse of both the young men and young women who are married. This would involve more data at each successive interview as well as more retrospective data in the first or second interview. In some cases, particularly for marital disruption studies, it might be useful to collect some additional information on characteristics of the first

spouse at the time of marriage for that small subset of women who have been married more than once. This would have been particularly valuable for the 30-44 year old sample in the earlier study.

(9) Another potentially valuable addition would be questions concerning young people's projection of their futures. The interesting thing about a ten-year panel is that many of these predictions can be validated over time. It would also be interesting to see how these expectations about the future change, in response to changing circumstances. This is particularly important with reference to various theories about permanent income and also the theories about the formation of tastes and about the impact of one's expectations about the future on one's present behavior. Presently, we have only a glimmering of an understanding of the degree to which individuals and couples plan their longer term life courses, and the circumstances under which these plans, if they exist at all, are modified.

There are a number of interesting and important issues with respect to fertility.

(A) We now routinely collect fertility expectations data and we know that young couples now report very low fertility. I have argued elsewhere (Sweet, 1977) that in a pill-sterilization birth control environment, I would expect a tendency for downward adjustment of these expectations for a fairly large share of the cohort. Particularly, I think that childlessness and one-child families will occur with greater prevalence than the present expectations data suggest. (One study of these data for a recent cohort has appeared -- see Suter and Waite, 1975.) This adjustment of fertility expectations has implications for the labor force behavior of the individual women and the cohort. Further, there are, if I am correct, important labor force determinants of this readjustment.

(B) There is the whole issue of the causal relationship between labor force participation and fertility. To date we have not been able to get any decent handle on the problem. The explanations offered for this failing include:

(1) We do not yet have the right statistical tricks.

(2) We do not yet have the right data.

However, in my judgment, the reason is primarily:

(3) We have not yet been able to adequately formulate the appropriate questions which we want to answer. We do not really have many refutable, but non-trivial, hypotheses. Perhaps this overstates the case, but it emphasizes that in my judgment at least, before we undertake further large scale studies of the whole process, we should

(1) Try to organize our existing knowledge about the various components of the process;

(2) Undertake small scale studies of some of these component processes;

(3) Attempt to develop theoretical and conceptual models which encompass a larger share of these component processes.

6. The Aging of Children

This life cycle stage is not well represented in these samples. The omission of 25-29 year old women and men 25-44 in the earlier study as well as the lack of specific questioning on children, makes these data relatively inappropriate for studies of the life cycle stage involving children in school.

7. The "Empty Nest"

The "empty nest" is a label given to the situation of married couples following the exit from the household of the last child. There has to date been little study in the United States of the process by which children leave the parental household. The one notable exception is the work done with the Michigan panel data (see also Young, 1975). More study of this important process from the point of view of the parental household, as well as from the point of view of the young adult leaving the household, would be quite valuable. There are many forces affecting this transition, including the economic resources of the young adult, the economic resources of the parents, the housing situation in which parents are residing, the social environment of the parental household, the educational status of the child. How does this vary among children with different characteristics or different birth orders?

There are other issues which deserve attention. To what extent do parents adjust their housing stock to the empty nest situation, moving from larger housing to smaller housing, to housing which is more or less accessible to jobs and other institutions? To what extent is the empty nest associated with residential migration? It is a commonplace observation that people frequently remain in a community until their children finish high school, and it is quite possible that potential moves are "stored up" until this time and a great amount of movement occurs at about that time. To my knowledge little is known about this. To what extent is the labor force participation and hours worked, particularly by the wife, affected by the last child leaving the household? One factor is the cost of financing college education. To the extent that the absent child is still a financial burden on the "empty nest" couple, it may result in continued or renewed labor force participation and an increase in the hours worked of the wife or mother.

To what extent is the empty nest a period of conflict or a period of relative contentment? Dependent children in adolescent ages are frequently a source of considerable strain within the family.

What are leisure patterns of empty nest couples? Do they modify their leisure patterns as their children leave their household? What are patterns of contact of empty nest couples in the absence of day-to-day responsibilities for children with other kin. Do relations with kin assume an increasing role in the life of empty nest couples?

8. Marital Disruption

With the sample design from the first survey and the present proposed survey it appears as if a large portion of both early and late marital disruptions would be caught. Some of the issues with respect to marital disruption by separation and divorce which should be explored include:

(1) Overall, there has been a neglect of the male experience of marital disruption and subsequent remarriage. See, however, Hogan (1976). (2) Longitudinal data, unlike much of our retrospective data, provide an opportunity to obtain information on characteristics of both spouses at the time of marriage, retrospective reports of some aspects of the experience of spouses prior to marriage, and some of the details of the experiences within marriage. This potential

should be exploited. (3) The circumstances of step-children has been a neglected topic of research. The possibility exists of getting a fair amount of experience of step-children in a sample of this sort. Unfortunately, the younger sample would produce very few step-children (and person years of experience of step child-hood) over a period of 5-10 years. Similarly, the circumstances surrounding adoption and foster children might usefully be studied, although the number of cases here is very small. (4) A more dynamic view of the living arrangements of persons following marital disruption would be possible with data of this sort. In an earlier paper, I observed that the cross-section data on the living arrangements (or labor force behavior) of divorced women do not provide a very good understanding of what really happens following marital disruption. First, in a cross-section the women who are currently separated or divorced are very heavily over-representative of persons who have been in those circumstances for a long period of time and are very under-representative of the circumstances of women who spent only a short period of time between marriages, i.e., who remarried within a year or so of the termination of their marriage. A cross-section sample of separated or divorced women, gives us the experience of women weighted in proportion to the number of years spent in a disrupted state.

The important issue here is, what is the adaptation of women to a marital disruption -- in terms of living arrangements (i.e., moving into a parental household, moving in with other relatives, moving in and forming a household of one's own), their economic adaptation (i.e., going on welfare, continuing to work, increasing hours worked, entering the work force after an absence or for the first time). Attention should be paid to both temporary adaptations, and adaptations of a more permanent nature, and to their relationship with remarriage probabilities.

It would also be useful to try and get a better handle on women's expectations regarding remarriage, and for married persons an indication of their perception of the long-term viability of their present marriage. A limited amount of work has been done in the 1970 National Fertility Study regarding expectations about remarriage, and it seems worthy of continued development here. One of the important issues in understanding processes of marital disruption is to separately determine the antecedents of "marital conflict" and then to determine the response to conflict (e.g., separation) conditional on a given level of conflict.

It would be possible to ask some hypothetical questions about the responses to marital disruption. At first thought, this might seem somewhat farfetched but in terms of understanding the dynamics of disruption, but it would be interesting to try to assess the degree to which persons have thought about their response to a potential disruption, or for that matter, to a potential marriage strain. This kind of thing has its drawbacks -- both practical and ethical. It might well be the sort of questioning which would cause the lack of subsequent cooperation with the interview. It also might be regarded as a kind of questioning which might have an adverse effect on the life of the respondent.

A unique opportunity that the longitudinal design provides is to examine responses to temporary personal crises. For example, the death of a family member, a period of extended unemployment or illness, the temporary separation of spouses, and so forth. Any of these events is sufficiently rare that definitive work could not be done with a small sample of this sort. However, it does seem to me that as one follows the lives of a group of people over a period of time, such events are of sufficient frequency to provide some interesting study if we are prepared ahead of time to follow through on it and not treat these events simply as temporary crises or annoyances within the lives of the sample households. Again, pursuing this line of endeavor might be regarded as either of doubtful utility, unethical, or potentially damaging of the rapport and cooperation of the sample respondents.

9. Old Age-Retirement

Much of the work done on activities of the elderly population surrounding retirement, widowhood, etc., has drawn on local samples which were quite homogeneous with respect to "social class." Some of the other studies which have been done of more representative samples have relatively restricted content.

Many of the same series of issues appropriate to the "empty nest" population might also be appropriate to the elderly sample. These issues include migration, adjustment of housing, adjustment of the labor force participation and hours worked of the wife, part-time post-retirement employment of the husband, the degree of conflict within the marriage, the degree of happiness, leisure patterns, kin contact, etc.

For lack of time, knowledge and inspiration, I have chosen not to develop this topic in any further detail.

Some General Issues

I will conclude my discussion with some general issues that pervade many topic areas covered in this memorandum and as well as others.

(1) A serious problem in longitudinal studies like the Parnes Study under discussion here and the Michigan Longitudinal Study is that of sample attrition. It is usual practice to minimize the significance of sample attrition by comparing the distribution of characteristics of the initial sample with those of the survivors in the sample at some later point. Most often these comparisons show little selectivity in sample attrition.

The issue that I am concerned with, however, is a different issue -- sample attrition that is associated directly with the processes being studied. For example, there have been several reports from both the Parnes Study and the Michigan Study on levels and differential incidence of marital disruption. It seems to me that these analyses have not come to grips with the fact that one very important source of sample attrition is that associated with marital disruption itself. This would certainly have an effect on measured levels of marital disruption. It could have an effect on differential patterns of marital disruption among subgroups in the population and might well bias measured effects of both background characteristics, as well as the effects of changes in economic circumstances, etc.

Other processes in addition to marital disruption could well be associated with attrition from the sample. These include marriage, migration, job change, and mobility into and out of the labor forces. One might also find deterioration of respondents' "mental health" to be associated with attrition.

I am raising a question and not proposing a solution. I would not advocate refraining from studying processes like marital disruption which may be associated with sample attrition, but I think that greater caution should be exercised.

(2) Cohort definition, duration, and exposure to risk in longitudinal samples defined by age using a period specific interview question content.--In a recent paper, Steven Bahr (1977) examined the probability of marital disruption of the NLS young women's sample. He begins with a sample of persons married at the time of the first interview and analyzes the probability that their marriages terminated within four years. He addresses the question of whether the higher rate of marital dissolution associated with young age at marriage is due to the intervening process of changes in husband's income and the couple's accumulation of assets. With this design the sample of marriages consists disproportionately of persons marrying young, as compared to what any marriage cohort would include. His sample of young marriers are disproportionately at longer durations than his sample of older marriages. Further, the marriage experienced studied varies systematically with respect to duration, depending on age at marriage. However, an adequate test of his hypothesis requires that duration be fixed.

In the NLS data, the original sample of young persons are 15 to 24 years of age at the first observation. We follow these people through time. The members of the sample complete their education, marry, begin their first job, have children, and go through a variety of other life cycle transitions as they age. They start in an age range spread over an interval in which a great many important transitions tend to occur. These transitions occur to individuals not at a fixed age, but over a range of ages.

The sample persons are asked for information about their present characteristics and about recent changes on an annual basis, using the same interview schedule for every individual in any given year. The content of this interview schedule is similar for one year to another, but each year some further unique information is asked. It is this unique information to which my comments are directed.

Suppose that it was determined that it is important to add some questions which might illuminate the process of marital disruption and a series of questions were added to the survey of that year. Some people will not be asked these questions because they are not yet married. For other people who are married, the questions will be asked very early in their marriage because, perhaps, they got married the day before the interviewer came along. Other people who are older at the initial sample selection and may have been married for several years at that time, have been married for 10 years or so by the time they are asked the questions which are aimed at illuminating processes of marital disruption. Still others have already experienced disruption of their marriage by the time the questions are asked, so they are not asked.

Two problems are involved. The first is that at a given point in time in a survey in which the respondents are selected on the basis of their initial age, different members of the sample are in different circumstances with respect to risk of particular events. In addition, they have had different periods of exposure to risk. Secondly, married persons in the sample appear at varying marriage durations, with different family circumstances. Statistical controls may be introduced in a multivariate model, and interactions can be introduced in various ways. However, it seems to me to be preferable to have a more homogeneous (marriage) cohort experience to analyze.

The solution to this problem, it seems to me, is to determine at the beginning what processes are going to be studied intensively and then consider what the ideal point in the life cycle would be to ask about these processes. Relevant questions should be asked at the relevant point, so that exposure to risk is controlled. For example, in the case of marital disruption, questions about the marriage should be asked shortly after its occurrence -- say, 6 months to a year or a year and a half after the marriage. Thus, individuals would be asked a marriage supplement at a more or less fixed duration following the marriage and then at successive rounds thereafter. Not everyone in the sample would be asked the same questions in the same year, but everyone would be asked to the extent that it is feasible, the same questions at the same point in their "family life cycle."

I have focused attention on marriage and divorce, but there are a number of different events that mark an important life cycle transition and which might reasonably be regarded as beginning a period of exposure to risk and other kinds of transitions and experiences. It might be worth considering devising a series of questions to be asked about the events whenever they occur within the same span of the study.

For example, (1) at the time of graduation from high school or college or the termination of education; (2) special questions on the situation at the time of first birth -- perhaps some retrospective questions surrounding the decision to have a first birth or the circumstances under which the conception occurred; (3) marriage would be another event with a special set of questions surrounding the occurrence of a first marriage; (4) divorce; (5) retirement; (6) entering the "empty nest" stage; (7) widowhood.

The period immediately after the occurrence of such an event is particularly important because a whole series of temporary and more permanent changes and adjustments are likely to follow very soon after the event; an understanding of this complex array of responses may help in better understanding the longer-term consequences of the occurrence of such an event or of its timing.

Another example of a related problem is found in the questions asked of young women in the sample on page 11 of the first round interview. Such women were asked a question concerning why they left their last job: two of the categories relate to family processes -- one was to get married, and another was because the husband wanted her to. From this kind of question it is, of course, impossible to determine the degree to which marriage is associated with labor force transitions since many people who married and left their job, subsequently got a new job.

Similarly, many people who got married continued with their job. The question asked relates to an event that occurred at an unspecified point in time, and refers to the last occurrence of a possibly recurring event which may or may not have coincided with the marriage of the woman. Hence, the question asked does not permit any analysis of job mobility associated with marriage (or anything else, for that matter).

(3) Retrospective questions.--I think the utility of a longitudinal study may be greatly enhanced by asking retrospective questions about the life experiences prior to the beginning of the study period in an early round of the survey. I felt very much that the NLS studies have not had enough retrospective questioning. For example, in the 30-44 year old women sample, complete childbearing and work histories should have been collected at the outset. As it stands now there are many gaps, and work such as that of Polachek and Mincer would have been greatly enhanced by the inclusion of such questions. Selecting the relevant retrospective questions would require a more comprehensive plan of substantive focus and priorities.

Retrospective questions are another way of filling in experience missed by virtue of the sample design (age specific sample with fixed survey content for all respondents at each round to study events which have considerable age variance in occurrence).

(4) Duncan (1969) has noted that there is a fundamental conflict in the study of social change, between replicating old survey questions exactly as they were done at an earlier time or improving upon them and losing the advantages of exact replication. In considering the surveying of a new cohort of young persons in the national longitudinal surveys it is appropriate to consider explictly this dilemma. This is the second cohort to be observed in what may become a series of studies. Exact replication of earlier studies is important in assessing social change to date. We should not lose sight of the fact that there will be further change in subsequent decades and at some point the data to be collected in the late 1970s will be used as the starting point in assessing change in the future. Thus, it is essential to consider not only what we can replicate from the previous cohort study, but also what baseline measurements taken today would be worthy of replication a decade from now.

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THE JOB SEARCH

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THE JOB SEARCH

Only a modest amount of empirical work has been accomplished in the field of job search. The main reason for this is the absence of appropriate data to distinguish among the multitudinous search-theoretic hypotheses. This memorandum states some of these hypotheses and indicates how the National Longitudinal Surveys can be used to facilitate testing.

It begins with the simplest search model and describes the data necessary to test some of its implications. Search models which accommodate fluctuating reservation wages are then presented together with their data requirements. This is followed by a model of on-the-job search and questions that can determine its importance. Next, a model that allows search intensity to vary is briefly outlined as well as its data requirements. The concluding section contains a model of job search over the business cycle and discusses the data necessary for testing its implications.

The Elementary Job Search Model

The critical components of job search models are: the cost of search, c, the distribution, F, of job offers, and the reservation wage, ξ. In the elementary job search model, a job offer X_i is tendered each period, where X_i is a random variable with distribution F. The cost of generating each offer is constant and there is no discounting. The X_i's are mutually independent and F is well-behaved. If the job searcher retains the highest offer (searching with recall), the return from stopping after the nth search is

$$Y_n = \mathrm{Max}(X_1,\ldots,X_n) - nc.$$

The searcher is assumed to maximize Y_n. The best rule in this simple setting has the following form:

accept employment if $x \geq \xi$

continue to search if $x < \xi$,

where ξ is the solution to

$$c = \int_{\xi}^{\infty} (x-\xi)\, dF(x).$$ [*]

This model has been used to rationalize frictional unemployment -- what was previously regarded as waste is now interpreted as a productive endeavor. But do people really behave in this elementary way? More complicated search models have been designed that include risk aversion, wealth effects, adaptive behavior, etc. These will be addressed in a moment. For now focus on the simple model and its data requirements.

The cost of search must be measured before we can test this model. In the NLS, it is important to differentiate between the fixed and marginal costs of searching. A question about cost could be asked for 21m, i.e., how did you find your current job and how much did it cost? How was this cost divided between an entry payment and a payment per job offer? Did the cost per job offer remain constant over the period of search?[**]

Next the wage distribution facing the job searcher should be ascertained. This cannot be done precisely, but we might be able to ask questions from which the mean and standard deviation can be inferred. This could be done after 48b.

The reservation wage is the answer to questions 48c and 46d. Given the cost of search and an estimate of the offer distribution, the discrepancy between the "optimal" and actual reservation wage can be calculated.

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[*] For a complete description of this elementary search model, see the survey by Lippman and McCall.

[**] Question numbers refer to the 1976 Survey for Young Men.

The essence of the job search paradigm is a willingness to reject offers below the reservation wage. In the Retrospective Work History after the respondent is questioned about the method of search 52e, he could then be asked about the cost of search, the offer distribution, the reservation wage, the number of offers he received, but rejected, and the accepted wage. This should be done for each spell of unemployment. The way the question is currently phrased implies that the job searcher could have rejected only one offer in the past five years. Would also like to know how long he searched before receiving an acceptable offer. It is extremely important to differentiate between the period of unemployment and the period of search. Surely, it is incorrect to equate unemployment and job search.

Search Models With Fluctuating Reservation Wages

The behavior of the reservation wage over the period of job search is a decisive factor in discriminating among search models. In the elementary search model the reservation wage is constant over time. Empirical studies have found this to be incorrect. Kasper and others discovered that the reservation wage declines over the period of job search.*/ On the other hand, Sant concludes from his analysis of the Survey of Work Experience of Your Men, "that a monotonically declining sequence of reservation wages is not an accurate description of actual search behavior of unemployed individuals looking for jobs." What theoretical considerations can be used to reconcile these empirical inconsistencies? And, more importantly, how can the NLS be used to assess their relative importance?

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*/ In his study of 3000 long-term unemployed the reservation wage declined at a rate that varied from .32 to .76 per month. Barnes and Stephenson also observed declining reservation wages.

There are several reasons for expecting reservation wages to decline as search continues of which the following are the most significant: (a) Finite time horizon will cause the job searcher to lower his reservation wage as he ages.*/ One would expect this factor to be of minor importance during brief episodes of unemployment. This is especially true of younger searchers. (b) Initial perceptions of the wage offer distribution may be incorrect. Assuming that an adaptive search strategy is followed, the reservation wage will be adjusted as these false perceptions are corrected by observed wage offers.**/ If the searcher was initially and wrongly pessimistic, his reservation wage will rise, over time; if he was overly optimistic, the reservation will decline as search continues. (c) Salop has discussed another reason for the reservation wage to decline as search proceeds. The elementary search model assumed that individuals sampled randomly without recall from the wage distribution. All firms in which their skills were used were treated equally. In fact, job searchers usually have prior information about job opportunities in these firms. Using this information to rank firms, they then search systematically starting with those firms with the best opportunities. As the searcher marches down his list he recalculates his reservation wage at each step. The reservation wage appropriate for a highly ranked firm will be too large for a lower ranked firm so that searching in this systematic way gives rise to a declining reservation wage.

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*/ See Gronau and Lippman and McCall. This is true for both recall and non-recall, with the recall reservation wage exceeding the non-recall wage.

**/ See Rothschild.

(d) As search goes on there is presumably a diminution in wealth. This in turn causes the reservation wage to decline assuming that the searcher has decreasing absolute risk aversion.[*]

The important point emerging from these models is that the reservation wage and its behavior over periods of search depend on factors like age, wealth, perceptions, skills, and risk preferences. The theory of search cannot be tested properly until information is gathered on these key variables. The addition of the following questions to the NLS would enable us to test the importance of these variables:

1. How much wealth did you have at the beginning of your job search?
2. How much of this was in a liquid form?
3. At what rate was wealth reduced during search?
4. Were you receiving unemployment compensation while searching?
5. What was your initial reservation wage?
6. Did you revise your reservation wage as offers were obtained?
7. Did you search systematically?
8. What offers were rejected? How many?
9. What was the acceptance offer?
10. Were you allowed to accumulate offers?
11. How long was the period of search?

All the previous discussion assumes that the job is completely characterized by the dollar amount of the wage offer. Obviously, the searcher is also concerned with non-pecuniary aspects like job tenure, availability of on-the-job training, working conditions, and location. Consequently, the following questions should also be asked:

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[*] See Hall, Lippman, and McCall. The assumption of decreasing absolute risk aversion is relatively weak. The sparse empirical work on this subject does not reject the assumption.

12. Do you regard the accepted job as a permanent or temporary position?

13. Does the job include training?

14. Does the job involve more travel time than previously?

15. Did you relocate in order to obtain this job?

On-The-Job Search

A valuable job attribute is the ability to engage in on-the-job search. Mattila estimated that "at least 50 to 60 percent of all quits move from job to job without ever experiencing unemployment." This suggests that on-the-job search may be quite important and that full time searchers are mainly new entrants and discharged workers. In the model of on-the-job search the worker has three options at every point of time: work full time, on-the-job search and full time search. Assuming that the cost of on-the-job search exceeds the cost of full time search, and also that on-the-job search is worthwhile, the policy has the following structure:

if $x \leq \xi_1$, search full time

if $\xi_1 < x < \xi_2$, use on-the-job search

if $x \geq \xi_2$, work full time,

where x is the current wage and ξ_1 and ξ_2 are reservation wages.*/

The significance of on-the-job search can be assessed by the NLS. This can be done by elaborating on 35c, asking the following questions:

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*/ See Lippman and McCall for details.

1. What is the cost of on-the-job search relative to full time search?
2. Did you engage in on-the-job search?
3. How many offers did you get during your on-the-job search?
4. What was the accepted offer?
5. How long did you search on-the-job?
6. Did you begin with on-the-job search but eventually quit and search full time?
7. Was on-the-job search done in anticipation of a layoff?

As an aside note that question 21 1, the respondent should evaluate the alternative methods used in his job search. Also explain why he chose a particular mode of search. And in question 30a should not mix layoff and job search. Rather should ask if a job was sought during layoff. If people search on the job then surely they must also search while being laid off. How important is this?

8. If you quit your previous job, did you search before quitting? Was this easier than searching after quitting?
9. If laid off, did you search while awaiting a recall?

Variable Intensity of Search

Almost all search models assume there is a fixed cost of search per period yielding one draw from the wage distribution. In fact, the intensity of search is a variable that can be controlled by the job searcher. Presumably, the higher foregone earnings the greater the intensity of search. The following questions can address this issue:

1. Was your rate of search per period constant over the job search?
2. If constant, what was the rate?
3. If not constant, what was its range?

4. Was your rate of expenditure on search constant throughout the spell of unemployment?

5. If it was constant, what was the amount?

6. If not, what was the range within which it fluctuated?

Business Cycle Effects

Another setting in which reservation wages are not constant over time is when the underlying wage distribution is changing in response to business cycle forces. It has been shown that the reservation wage declines as the economy deteriorates. Nevertheless, without special assumptions, it could not be demonstrated that the period of search unemployment declined as the economy improved. The longitudinal feature of the NLS can be used to test the effects of the business cycle. These tests can be based on questions already asked about reservation wages and duration of search at different points of the business cycle.

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The Effects of Schooling and the Transition from School to Work

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In recommending foci for the new cohort panels of the National Longitudinal Studies (NLS) I shall raise, at least implicitly, an issue which may be moot at this stage of planning. Namely, should the NLS be conceived rather narrowly as a longitudinal version of the Current Population Survey (CPS); or, should the NLS range broadly over many aspects of the unfolding development of young persons' lives as they pass through various stages of the life cycle? In the first case, the new NLS would go forward with refinements in its technical measurement of unemployment, job changes, earnings, and the economic returns to schooling--essentially issues about the supply of labor but also to a degree about the supply and quality of jobs in the regular economy. In the second case, the scope of life's substance addressed by the NLS would be even more encompassing than the present range of the questionnaires (see James Sweet's evaluation of the perhaps excessive breadth of the former surveys). As I understand my mission, I am to take some stand between these two alternatives. In view of my subject, "the transition from school to work," I shall argue for substantial expansion of the topical foci of the new NLS panels of young boys and girls. Further, I shall argue that the target population of these panels should be expanded to include military as well as civilian members of the resident population. (I might be convinced to restrict it to the non-institutional population, but the matter of following the institutionally resident student population into adulthood is not an unimportant one.) Finally, I shall suggest that a commitment to a five-year follow-up of persons in the ages 14 to 21 is not enough.

In my remarks I shall attend in the main to the half of my assignment on the transition from school to work; thus, my ideas refer mostly to the new NLS cohorts. I am reluctant to venture too deeply into what is really a second major topic--the effects of schooling. This is the economists' baliwick, and it has enjoyed extensive attention throughout the course of the

NLS studies (as well as elsewhere). But the recent decision to alter the new cohort definitions from ages 14 to 24 to ages 14 to 21 is really the basis of my reluctance to say much about the effects of education. At the end of the five-year follow-up, large fractions of the new cohorts will still be in school, at least part-time. Thus, it is rather foolish to talk about assessing the effects of something which will not be fully unfolded until sometime after the present commitment to a five-year follow-up has been discharged.

Let me consider briefly the outline of what I understand to be the transition from school to work. From the vantage of the individual, this life-stage transition is part of the evolution of a multiplex role-set which we might refer to as becoming an adult. "Worker" is but one role or element of the adult role-set (including, for example, spouse, parent, citizen). "Student" is but one element of the role-set of youth. While the latter is far less subject to multiple and often inconsistent role demands than in the instance of adults, both "student" and "worker" roles can be studied in isolation from their respective role-sets only at great risk to complete understanding. In proposing the study of the life-stage transition from school to work (call it entrance into the labor force, if you will), I am suggesting that "initial" entrance into the role "worker" is conditioned by other roles and by a variety of socio-cultural, historical, and economic factors. It is my view that little new will be learned of how youth enter the labor market and become workers unless panel studies such as the NLS (and Bachman's "Youth in Transition") place this process within the larger framework of "becoming an adult"--that process of exchanging a rather simplex role-set for a multiplex one during the late teens to middle or late twenties.

From a perspective on social collectivities rather than individuals, the life cycle embodies cultural norms which adjust the psycho-biological time-piece of maturation to socio-cultural rhythms (see Ruth Benedict, 1938). For a majority of American males, the life cycle between youth and adulthood consists in the termination of schooling, followed by (in order) entrance into the economy as a nearly full-time worker and marriage and family life. Table 1 documents the statistical reality of this sequential time-table of life events, as over half of American men experience this "typical" pattern. But both the sequencing and the pace of events in the transition into adulthood are variable. Among the birth cohorts which bore the greater burdens of military service in World War II and (to a lesser degree) in Korea, the transition became somewhat less orderly than usual, and the frequency of atypical inversions--such as the interruption of schooling by military service, brief civilian employment, and the resumption of schooling--rose sharply. (Note the percentage of education-first job inversions in Table 1 increased from about 11 percent to 15 percent for cohorts with substantial WW II and Korean veterans before falling again. Indeed, veterans in all birth cohorts experience less "typicality" in the sequencing of life events than nonveterans--see Hogan, 1977). In the aggregate, however, the transition from youth to adulthood, as indexed by the temporal intervals between school leaving and entrance into first full-time civilian jobs, has grown shorter (see Figure 1) over the experiences of successive cohorts born in this century. Winsborough (1975) suggests that the exigencies of war-time and (for later cohorts) the impending threats of the Vietnam draft probably compressed the stage of youth and shortened the duration of the transition from schoolboy to adult worker.

Moving from this discourse on life cycles, what is the significance for the design and content of the new NLS? In stating the relevance I shall assume that the selection of two youthful cohorts was again guided by an interest in "the processes of occupational choice, and...the preparation for work and the frequently difficult period of accommodation to the labor market when formal schooling has been completed" (NLS Handbook, 1976:1).

First, the target population should include all elements "at risk" to becoming a worker (i.e., completing the transition from school to work during the course of the study period). Operationally, this means sampling the birth cohorts ages 14 to 24 or 14 to 21 in the initial survey year and following them as a panel across time. This is not how the 1966 and 1968 NLS surveys for the "boys" and "girls" cohorts were designed. Rather, these were targetted for the civilian noninstitutional populations. By definition, these surveys did not include students residing in institutional quarters or youth in the military in 1966 (1968 in the case of girls). Once eliminated by their non-universe status from the initial panels, these non-civilian or student youth were not part of the chronicle of occupational choice and labor force experience which the NLS data contain. The whole impact of this population restriction is hard to estimate, but one example is informative.

In 1966 roughly 3 million males were on active military duty--up slightly from the post-Korean lows of 1960 but not as high as the peak of the Vietnam period (3.5 million in 1970). If we assume that the most vulnerable ages for military service in 1966 were ages 17 to 20, then we can say that the birth cohorts of 1946-49 were at the greatest risk to being incompletely sampled by the NLS survey of young men. Fully 46, 55, 51, and 42 percent of the men in these birth cohorts ever served in the military. The median age by which men in all these cohorts would have entered the service was 18, although 25 percent entered prior to their eighteenth birthday. Average duration of military service for each of these cohorts was over 4.5 years. By inference, a large segment of the "young male cohort" was and is missing from the old NLS data because of a unique historical (period) event which (because of an ill-conceived NLS population restriction) irreparably confounds one's analytic aspirations for cohort comparisons (using a new cohort and the old baseline) and conflates period effects with those of aging. An instance of the latter is the analysis of first jobs. From retrospective questions in the 1973 OCG survey (Featherman and Hauser, 1975) we can estimate that the median ages of first full-time civilian jobs of the cohorts born between 1946-49 ranged between 19.5 and 20.0 (Winsborough, 1975: Table 2); fewer than 25 percent of these cohorts took their first jobs prior to the average age of military induction. Thus a large segment of the first-job taking process is totally missing from the "old" NLS cohort of young men. One can only speculate how accurate the story of first-job taking is as represented by these data from civilians only (as of 1966). (The population restriction for 1966 quickly made even less sense in 1967, when the panel data no longer represented even the civilian non-institutional population in that year; this is what I mean by the irreparable conflation of period--1966--and aging effects.)

Operationally, the new NLS cohorts of youth should sample those currently living on military bases and in certain institutional quarters, namely in schools and college dorms, as well as in non-institutional housing (military in off-base housing is conventionally classified as "civilian" by census CPS definition). The deviation of this suggestion from the 1966 NLS design for the young cohorts is not regarded as costly. Current enlistments in military service are markedly lower than in the sixties. Student residential populations could be subsampled, either directly or through the households of their parents. Comparisons of the "new" and "old" youthful cohorts still could be carried out, at least nominally (although coverage of the noninstitutionalized resident population in the relevant ages would be unequal in comparisons carried out in the civilian populations of 1966 and 1977, owing to differentials in military service). In any case, since the Bureau of the Census probably will not be doing the field work this time, issues of comparability are really up in the air anyway. (This is even more reason to sample birth cohorts and not some residentially defined subset thereof.)

My second recommendation, based on the life cycle notion, is that the definition for the new cohorts should be ages 14 to 24 rather than 14 to 21. From the 1970 Census we know that nearly 8.5 percent of men ages 25 to 29 were still enrolled in school; at ages 30 to 34, 5 percent. Of the approximately 93 percent of men ages 25 to 29 in the labor force in 1970, some 9 percent also were enrolled in school. The two enrollment percentages are up from the comparable 1960 figures. Clearly, a somewhat larger fraction of persons protracts its schooling to older ages than in 1966. Following the cohorts to at least ages 29 or 30 is essential to monitor the school-completion, first-job taking process, especially for those entering the market with college and advanced degrees. That group is critically interesting in light of Richard Freeman's (1976) contentions about the deterioration of returns to college. Moreover, the persons in their twenties in 1977 represent the trailing edge of the "baby-boom"--cohorts with rather unique experiences in (crowded) schools and with perhaps unusually high school attendance rates (Suter, 1976). From the standpoint of seeking to characterize experiences of historically important birth cohorts, the new NLS survey should include these age groups.

Third, the content and format of the annual NLS questionnaires should permit analysts to dissect the complexities of the transition from school to work within the larger context of the role transitions from youth to adulthood. Keeping in mind that these transitions are subject to period or historical effects, it would be highly useful to have detailed and extensively dated personal histories of school attendance, job changes, pregnancies, births, marriages/divorces by which cohort histories could be constructed. Within single-year birth cohorts, it would be desirable to compare the sequencing and pace of life-stage events which comprise the female vs. male life cycles, the black vs. white, the rural vs. metropolitan, the middle-class vs. the "under-class" life cycles. Thus, "mapping" the life cycles of cohorts and social aggregates is an important analytic possibility for the new NLS.

To accomplish this end, however, the questionnaires would have to collect detailed chronologies of events measured in small units of time--perhaps using retrospective reporting (as was the case in the job history section of the 1976 interview of young men). Important content domains of the life cycle transition into adulthood include (among others) job histories, employment histories, enrollment histories, migration and living arrangements, consumption patterns (e.g., when do persons assume responsibility for buying own clothes, paying rent, buying gas), interpersonal and sexual intimacy, and pregnancy and childbearing histories. Ideally, one would like information on each event within each of these domains, including timing and duration of the statuses within years. Experience with retrospective techniques of reporting suggests that such life history schedules could be collected in a single panel for a longer period of reference than one year, if necessary. In principle, one wishes to account for how youth spend their time over the course of each year and across the set of domains which comprise the matrix of roles they enact.

What would the analyst do with such abundant data? That's a tough question, for the record of sociological studies of rich life history data is not impressive. Techniques for summarizing complicated chronologies are still in embryo (although I suspect some physicist might lend a hand in this matter of establishing trace lines for careers and life transitions in general). But I remain convinced that we must give substantial attention to specifying the content and form of the early adult life cycle if we are to understand the contingent circumstances under which individuals (and later, spouses) alter their educational and labor force participation. Indeed, lacking a concrete (operational) definition of life cycle, it is virtually impossible to make much sense out of intercohort shifts in schooling and work patterns.

My fourth recommendation is suggested by my emphasis of broadly conceived life cycle processes associated with becoming an adult, but it also is at the heart of the specific transition from school to work. For most persons in the ages 14 to 21 in the late seventies, schooling and some form of education is the major business of life. Educational institutions set the tempo (as any parent of teenagers!). At present, the NLS questionnaires tell us very little about educational experiences, a bit more about schooling, and considerable about enrollment and curriculum in regular schools. Consider the proposition that high unemployment of teenagers is an inevitable feature of advanced industrial economies--that demand for young "drop outs" is inelastic. Assume that school enrollment and unemployment rates are positively related over some lagged interval, but at the individual level the search for employment often occurs because the schools are unattractive places to spend time and, after grade 12, expensive. Thus, one approach to the "problem" of unemployed or marginally employed youth is through questions that ascertain what keeps kids in school and out of the labor force. The suggestion that one fruitful line of labor force studies among youth might be studies of school retention probably falls outside the interests of many in this audience. But I submit that we shall not further our understanding of the interface between schooling and work unless we push our base of information about school experiences well beyond the short limits of the old NLS questions. Without attempting to draft new questions, let me phrase some issues.

1. What curricula, instructional styles, scheduling and student compositional features of classrooms are objectively and subjectively linked to positive orientations toward and retention in regular schools?
2. What types of peer orientations facilitate or impede vocational or academic values within the school? How do peer networks outside the school influence scholastic orientations?
3. Aside from conventional classroom settings, what are the possibilities for education through activities and clubs? Leadership roles? Counter-cultural roles?
4. What effects do racial and generational conflicts within the schools have on the capacity of schools to retain their enrollees?
5. What problems or issues within the household and family environments of high-school aged children prompt withdrawal (e.g., sudden financial shifts, teenage pregnancy)?
6. What events lead to irregular, discontinuous patterns of enrollment, as distinct from those which encourage permanent withdrawal?
7. What types of teenage employment experiences and jobs lure students out of schools? What are the job histories (career trajectories) of such persons? Conversely, what types of jobs and employment histories of teenagers are likely to encourage re-enrollment?

These issues are framed within the settings of regular schools. Similar ones could be phrased for vocational/technical schools as well as other institutions of non-regular education. The idea is to see the variety of educational settings as alternatives to labor force participation and not just as means for enriching and certifying the quality of the labor supply.

Beyond both regular and non-regular schools, teenage education takes place in the streets and, for those with jobs, on the job. With regard to the latter, I see no effort in the past NLS studies to tap the idea of OJT directly, at least in ways which permit one to disaggregate tenure (viz., time with a given employer) from job- or occupation-specific knowledge. Can workers articulate the ways that they have learned from fellow employees? Are there manifest efforts to control knowledge by more senior personnel? How much is there to learn in the first place? What effects do such real-world experiences (such as on jobs and in schools) have on knowledge of the world of work? [An aside--it is too bad that "knowledge of the world of work" was assessed only once for each young cohort--1966 and 1968 for boys and girls, respectively. One would like to see this education in a developmental perspective. While the items doubtless are loaded on general intelligence, their nearly exclusive use as measures of "late IQ" underplay the potential in relation to aspirations and concrete decisions about continuation of schooling and early job histories.]

A fifth suggestion is that military service also be treated as an alternative to labor force participation by some youth. Particularly in times such as the present when the service is "voluntarily" chosen, it seems important to query persons as to (a) whether or not they considered the military as an option instead of going back to school this term or of looking for a job; (b) why they "volunteered," if they did and what they hope to get out of it; (c) what determines how long they stay in; (d) what happens to their civilian skills and aspirations/plans during the period; (e) aside from job-related changes, how is social maturity ("competence") advanced in relation to those in other social settings? Military service is in a sense like the schools--a place to bide one's time, a place to be educated, an experience which alters the pace and sequence of other events in the life-stage transition to adulthood. But to study these matters, it is essential to study birth cohorts and monitor their members as they distribute their time across the increasingly varied roles and institutions associated with full adult life.

[I would generalize my last remark to include marriage and parenting as options, too. It would be useful to know, at least on a semi-annual schedule, which life options are considered by youth. The NLS tends to limit its view to schools vs. jobs. I recommend that in addition to asking about educational and job plans for next year that each panel be asked about plans in other domains; then, follow-up on why they did not get married, have a child, go into the military.]

Let me close my remarks with suggestions for refinement of concepts and measurements dealing with jobs. Here my ideas do not rest on an expanded and elaborated "mission" for the new NLS as a longitudinal cohort study.

First, I should think that all occupations should be coded as close to homogeneous jobs as our technology permits. This means at least a DOT coding as well as three-digit detailed occupation codes as used by the U.S. Census (I include industry and class of worker information as well). Such detail is the basic stuff of either "human capital" approaches or "market" approaches to occupational careers.

Second, I would suggest that measures of job and occupational characteristics not accessed via the DOT be ascertained. "Job authority" is one important characteristic (see appended items which were part of our OCG Wisconsin survey and used subsequently by Sewell and colleagues in their follow-up of a Wisconsin high school cohort; see also Wolf and Fligstein, 1977, for applications to male/female occupational differences; see also Kluegel, 1975).

It may not be practical to estimate such specific job and occupational characteristics directly from rather small surveys such as the NLS, just as "market" analysis of inter-job relationships may not be terribly feasible since jobs and not people are the critical units. Nevertheless a variety of job characteristics would be desirable so that shifts in jobs can be seen along dimensions other than income or "status" and so that actual changes in jobs are more clearly discernible. This recommendation entails the further one that the NLS more consistently and clearly distinguish (particularly for the respondents!) job (task) changes from occupational changes from employer changes from industry changes. I maintain that the conventional questions used by the Census are good places to start, but the detailed occupational and industry codes are only crude ways to store the details of job incumbency which seem necessary in order to test some of our theories or to model careers (either for people or for jobs as units).

Third, I would pay more attention to the job search for all persons. Aside from what earnings levels people look for, what job characteristics are important for whom, at what stage of life, in relation to other alternatives (such as housework, school, military, parenting)? For example, much has been written about the "selective" or "censoring" of women into the labor force, but aside from conventionally economic issues (market wage vs. the opportunities of the "home economy") the matter is not imaginatively pursued. What about spouses' jobs in relation to each other, in relation to their respective and joint experiences of intergenerational mobility, in relation to job trade-offs across a set of job characteristics over the short and long-runs?

All of these quite general suggestions about jobs are even more critical in addressing the early employment histories of youth. When does work begin--

what is the "real" first job, or are their conceptually several "first" jobs? In either case, the matter is intractable until we have some greater purchase on the concept of job itself.

Finally, I would make a pitch for a series of measurement studies in conjunction with the new NLS. The Census has its own program for evaluating the validity and reliability of its items. In view of the probable change in the agency which carries out the new NLS studies, it would be well to reassess the quality of what is collected. This is particularly true for income, occupation, and education (in that order) as basic items in these NLS studies.

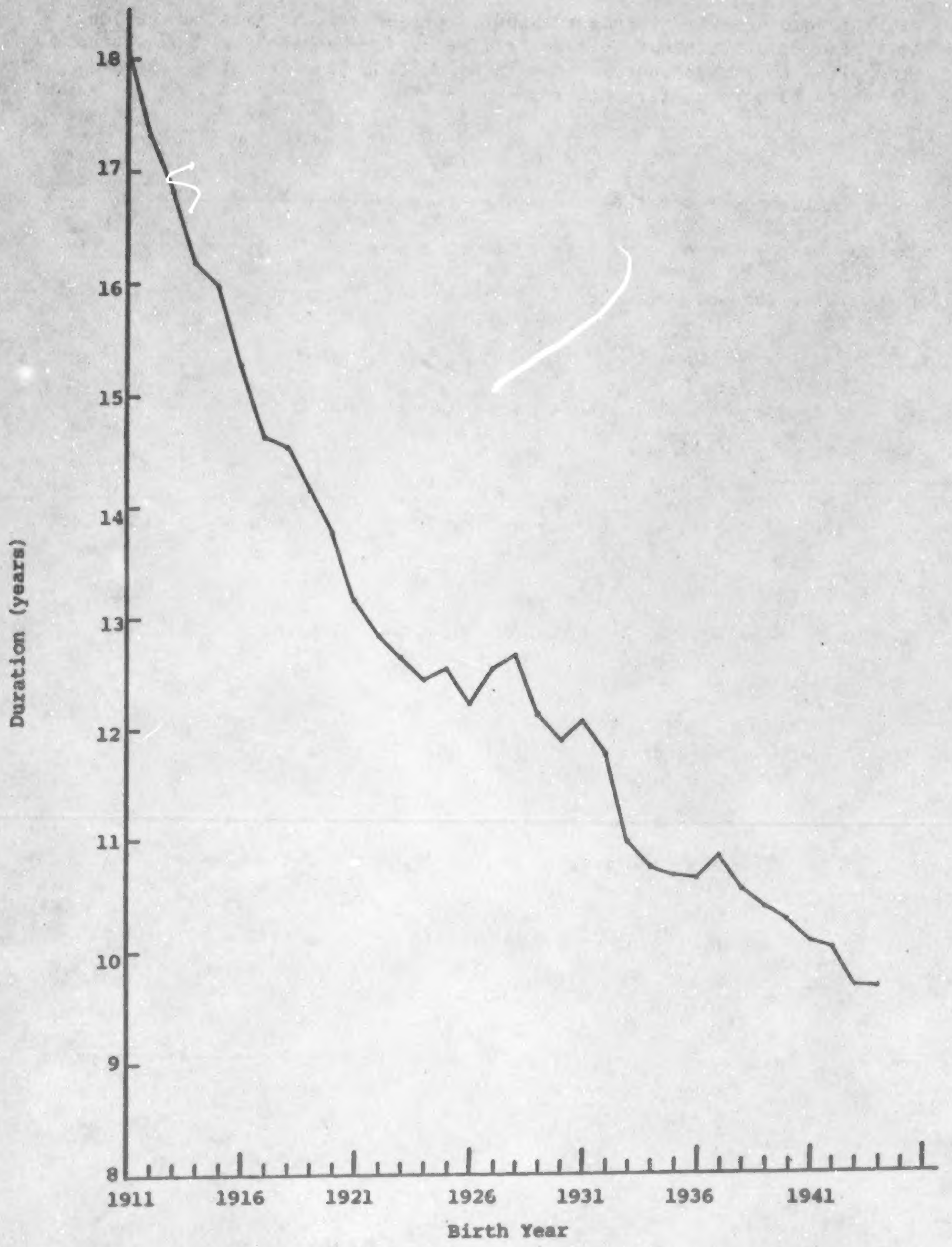
Table 1

Ordering of Events in the Transition from Schoolboy to Adult Status, Civilian Noninstitutional Population, by Birth Cohort, March 1973 (in percentages)

Ordering of events	Birth cohorts									Total men ages 21 to 65
	1907-1911	1912-1916	1917-1921	1922-1926	1927-1931	1932-1936	1937-1941	1942-1946	1947-1951	
Typical order of education, first job, marriage	56.5	56.8	57.5	54.2	53.2	53.3	55.2	54.3	49.8	54.0
Inversion of education and first job	10.6	11.6	11.9	13.5	15.0	15.5	14.4	12.5	9.1	12.4
Unclassifiable	25.5	21.8	17.6	16.5	16.5	16.1	15.4	18.6	34.5	21.3

SOURCE: Hogan, 1976: Table 3-1.

Figure 1: Duration of the Aggregate Transition to Maturity



SOURCE: Winsborough, 1975: Figure 12.

Questions from Project 696, Sewell and Hauser "Wisconsin School Study"

37. I shall read several statements about a person's activities on the job. As I read each statement, please tell me by saying "Yes" or "No" whether it applies to you in your work as (SEE QUESTION 28). First: I have authority to hire or fire others.

/Yes/ /No/

38. I can influence or set the rate of pay received by others. /Yes/ /No/

39. Someone else influences or sets my rate or amount of pay. /Yes/ /No/

40. I supervise the work of others. That is, what they produce or how much.

/Yes/ ↓ /No/ (TO Q 41)

40a. I decide both what others do and how they do it.

/Yes/ (TO Q 41) /No/ ↓

40b. I decide what others do, but they decide how to do it.

/Yes/ /No/

41. Someone else supervises my work. That is, what I produce or how much.

/Yes/ ↓ /No/ (TO Q 42, NEXT PAGE)

41a. Someone else decides what I do and how I do it.

/Yes/ (TO Q 42, NEXT PG) /No/ ↓

41b. Someone else decides what I do, but I decide how to do it.

/Yes/ /No/

41c. My supervisor exercises little or no control over my work.

/Yes/ /No/

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Social Psychological Potential in the NLS

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There are, of course, social psychologists -- many in my own department -- who would say that the NLS doesn't include any social psychological variables. This is as much a reflection on the field as it is on the contents of the studies.

Yet we will all probably agree that except for the adapted Rotter scale and the questions about sex roles, there is not a lot in the studies that goes to social psychological explanatory concepts or variables. There are questions about objective aspects of work and life which the social psychologist can take as indices in proxy for social psychological variables: so we use social class or job class as an index representing certain social and psychological conditions in the individual's life. But we always recognize that these stand as distant proxies and we long to measure directly those social-psychological aspects of life which, we think, affect peoples' lives, attitudes, and behavior. So, for example, instead of social class [or along with it] we would like to measure the quality of interpersonal interaction in the family and the extent of verbalization in a study of children's development or adolescent choices. We make do with class, but have ideas about the critical intervening factors which class only rather palely and poorly signals.

Still, there are riches in the NLS as it stands and social psychology is not, after all, its prime focus. I will restrict suggestions for new questions as tightly as possible and look mainly to the social psychological promise the existing data hold.

Analysis Areas and Strategies

The studies are particularly attractive because they are longitudinal and now with the addition of the new youth cohort they offer unique opportunity to segregate historical from developmental change.

The content areas which focus interest for social psychology seem to me to be primarily:

a. the meaning of work and its determinants, including broad changes in the culture over time

b. the relationship between work and other life areas, particularly family life

c. shifting norms about sex roles and women's participation in the productive system

The first two areas are combined in the following remarks.

The Work Life

Social psychologists are interested in the nature and degree of people's attachment to work, the meaning work has for people, the extent to which people are alienated from their work. In these areas the surveys currently include relatively rich information which offers analytic promise. In all of them I can offer a few suggestions for additional questions which I think would enlarge the payoff significantly at relatively small cost in questionnaire space.

Attachment to Work

For the non-economist this is probably the richest area of the questionnaire as it currently stands. The number, imaginativeness, and sophistication of the questions is extraordinary. We get the degree of job satisfaction and the qualities respondents consciously like and dislike in their jobs. Beyond conscious attribution we have measures of many other job aspects which might cause satisfaction or dissatisfaction and instability in work: wages, work demands and stress, the work organization's character [whether bureaucratic or entrepreneutial], distance traveled to work, overtime demands, etc. We have information about how much economic incentive it would take to get R to change jobs and to take a job in another part of the country. We know whether R would work if she/he had no economic-survival need to do so.

The strategies which suggest themselves for analysis of these data are numerous and more or less obvious. Many of them have indeed been used in early reports from the studies. Life stage analysis and generational variations in attachment to work are two of the most exciting. And the longitudinal character of the studies allows disentangling their effects. Intrinsic gratifications of work content are, we know, more crucial at professional and managerial levels of the occupation structure. But within occupations or occupational classes, can we demonstrate generational differences in the attachment to work. Do the young, who have grown up in a time when traditional work values have been radically challenged, demand more intrinsic gratification from work [as, for example they seem to do in school, claiming that they cannot learn what is not interesting to them or has no relevance]? Or do they, on the other hand, devalue the work life itself and ask only that work provide the money and free time [i.e., the extrinsic rewards] which make possible satisfaction of other self defined needs outside the productive system?

Is it possible that attachment to work changes over the life cycle so that the young demand intrinsic reward from work and care less about hours or high pay, the young middle-aged [absorbed with family responsibilities, demands, and pleasures] want high pay and reasonable hours more than intrinsic gratification, and the middle-aged want intrinsic reward and reasonable hours to allow greater self-development and broadening of life-satisfaction? Do people, in other words, change the role they assign work in self-definition and life-satisfaction as they move through various life stages? Do we come to appreciate the multiplicity of life as we get older [cf. the midlife crisis and midlife change research] or do we grow increasingly monomanic -- deciding that life is work or fame or money or whatever individual value we fix on?

Clearly individuals vary in this: some broaden and some narrow their goals and gratifications as they grow older. We can profitably look at patterns of change in attachment to work over life stages [always controlling for job class] and see if it's possible to predict such outcomes as psychological stress, physical morbidity, and life satisfaction.

Women work for reasons different from those which command men. It seems to me that we have a long way yet to go in understanding the way women attach to work. We do know that, aside from anything else, when many other incentives are factored out, money alone is a more compelling force attaching men to work [Rodgers]. Women, still for the most part working in segregated settings and in less powerful and less interesting work, may find the mastery involved in managing two crucial spheres a source of satisfaction and self-definition. And they probably do derive more satisfaction from the interpersonal aspects of work. They say they do and it may not be only because they are stuck doing uninteresting work.

Here, then, I come to an area which I think should be added to the studies: we need to know something about the interpersonal setting of work. To what extent does the work allow and support interpersonal exchange? Surely this is a buffer against alienation [cf. Blanner] and a source of job commitment for some people. We may get some information about it for those to whom it is highly salient [what do you like best about...] but it may also predict job instability in many people for whom it is not a consciously salient aspect of work.

The Meaning of Work

Women leave work or stay out of the labor force for reasons which are unique to their sex, and the studies as they stand take account of this fact: child-care and sex-role ideology are among the specific areas of questioning which reflect it. Women traditionally work only on the condition that work-family integration is possible; their work commitment is contingent on its fitting with family goals.

This concern with the fit between work and family life may be spreading to include men, and particularly men at certain life stages. In a recent analysis, Staines and Pleck have shown that overtime and difficult commuting relate to job dissatisfaction in both females and males during the years of active parenting [i.e., when there are preschool children in the home].

This aspect of the meaning of work — the way in which work enters the definition of self and the concept of life -- seems to me one which could be of special importance in the generations now coming into adulthood. I would urge inclusion of some items to allow us to assess:

a. the relative centrality of work in individuals' self definitions [compared to family roles and other roles]

b. the extent to which occupation is conceived as an individual or group activity. If work is primarily an instrument for realizing family goals [as it has traditionally been for women but must also be for many men whose jobs allow no self expression] is it not possible that the work life may come to be viewed as a family enterprise in which members are substitutable for [or supplementary to] each other as earners in the labor market. Such things as work hours, flexitime, part time, commuting time may come to be important to both males and females, and couples may do more coordinated planning of work commitments as womens' roles change, discrimination decreases, and work values change.

We have a new traditional family in which both adults are wage earners. Some analyses show that the wife's work is in many cases a substitute for the husband's moonlighting -- that is, as women have entered the work force, men have given up second jobs. This, then, is a case of coordinated work planning in families, and other cases may also develop [the two profession couple who willnot move for a good job for only one member of the couple].

Alienation

Here is an area in which the study includes social psychological measures: the IE and the question asking whether R would work without economic necessity pressing. The things listed as good aspects of work can also potentially be used: those who list no positive qualities and/or no intrinsic job qualities being more alienated than those who list all or mostly intrinsic rewards.

I have suggested adding some measure of the interpersonal structure of work on the basis of evidence that those jobs which disallow interpersonal exchange will alienate workers and lead to instability in job occupancy.

The analytic strategies here include relating alienation in work to the IE [both personal efficacy and fate control aspects] for subgroups in the population, including job classifications. How does alienation in work affect one's sense of fate control? Does it have greater force in some groups than in others? One suspects, for example that those who are subject to systematic discrimination will, as the Gurins have demonstrated, recognize external [social structural] forces as determinants of their situation [i.e., they will externalize blame for their situation] but will not necessarily be emasculated by this recognition in the personal realm. Group consciousness intervenes to protect the individual from demoralization. Where there is no possibility of such buffering, where the individual buys the myth of individual control, alienation at work may have more profound effects on the individual's sense of control and morale.

A question or two might be added directly on the issue of work alienation — e.g., Does R think he/she is especially good at his work? Is he/she irreplaceable? Is his/her work important?

Achievement and Career Lines

What pattern of work history optimizes achievement? Demographers have shown that for males, early deviations from the conventional pattern of work preparation-work produce irretrievable losses in achievement. The young male who drops out of school for marriage or other purposes will not recover the same level of achievement in career as his more conventional peers. The question which has not been explored is whether the same generalisation applies to women? Or does the fact that interruption in work is normative for women dilute its impact? Does the timing of the deviation from the career line affect the extent of the handicap? There is a myth at least that women who complete training and establish an early career before having children will be able to reenter the work force with less loss in overall achievement than those who deviate earlier.

The youth cohorts in NLS provide a rare opportunity to map career development and to analyse relationships among occupational aspirations, expectations, and actual vocational attainment. One can use the data to establish the relationships and the extent to which aspiration and expectation contribute to the variance in job attainment [compared to background factors like social class and paternal education] and also to understand what forces operate in deviant cases where aspiration is not predictive. The data also permit analysis of intergenerational mobility since respondents list father's education/occupation when they are living at home. The parents' contribution and social support for R's education is interesting as a possible determinant of R's occupational attainment, but it can also be thought of as an index of the parent-child relationship as well — the extent to which parents communicate(d) with their offspring and actively participate(d) in planning their future during the crucial formative years. Such an index may be a powerful predictor [at least for males] of the young R's identification with the goals of the parents and thus of his social class aspirations. Youth who do not share a close interactive relationship with parents may be less likely to achieve high occupations. But it may also be that close identification with the father will lead the boy to stable class aspirations [I want a life like my father's] rather than to upward mobility. The situation for the young female is different: since the mothers of these young women will have lived their adult lives in the traditional status system in which a woman's status was defined by her husband's attainment rather than her own occupation, the daughter can identify closely with the mother yet aspire to a class position and work life quite different from the mother's — without that aspiration standing as an implicit rejection of the mother.

The existence of opportunities for part time work can be crucial to women in maintaining a career line. An analysis of professional and semi-professional or managerial women working part time [compared to those in full time work] at the active parenting stage would yield information about where [in what occupations] part time jobs exist and what qualifications increase the chances of a woman finding or creating part time work opportunities.

Sex Role Issues

The studies provide unique opportunities in this area of profound social change. We expect, on the basis of previous findings, generational and sex differences in concepts of women's role. The NLS data offer the possibility of looking at the effects of critical role shifts and life experiences on these concepts. So for example it has been suggested that the birth of a first child alters the task distribution in couples and leads to a conservative shift toward complementary roles for husband and wife. This can potentially be tested in the young cohorts over the next 5-10 years, and to see whether certain preconditions [e.g., strong egalitarian ideology in the couple] insulate a couple against this effect.

Moving into the work force represents another critical change point since it may present young women [and minorities] with their first concrete experiences of discrimination. The studies allow detection of the effect of work-force entry on the experience and report of discrimination and sex role conceptions. The question here is whether experiences with discrimination radicalize sex role concepts.

While we know that sex role attitudes have become more liberal in the population, that younger people and women are more liberal than the older and men, there are still important questions to be asked about the distribution of attitudes and where the most striking changes are occurring.

One set of data [from political elites] suggests that among elite men, the higher the power position they occupy, the more conservative they are in sex role conceptions. Is this a generalization that holds for occupational power? Do men in higher managerial and professional positions — the gate keepers to job opportunity who can maintain or alter the sex-segregation which so clearly marks the occupational structure -- hold more conservative sex role conceptions than their less powerful male peers? Have they been more resistant to the changes in sex role norms occurring in the culture at large?

Monitoring changes in sex role conceptions and patterns of family organization over the next ten years is in itself a critical function the studies will serve. Analysis of intergenerational transmission of these conceptions is also possible. We know that older women who live traditional lives value changes in opportunities for women because they see the changes affecting the choices available to their daughters [Jayratne and Staines]. The interaction of mothers and daughters is likely to change in areas related to work and achievement. Traditionally fathers have been crucial as work models for male children, and women have served as models for daughters in family roles. With the growing expectation that women too will spend most of their adult lives in the work force, there may be some dislocation in the value transmission line between mothers and daughters. This may be another area in which supplemental questions should be used.